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Annual subscription £3 10s. 0d. post free. Single copies, One shilling & sixpence
Registered at the G.P.O. as a newspaper. Entered as second-class matter in U.S.A.

Vol. 94] FRIDAY, FEBRUARY 2, 1951 [No. 5

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The Coal Shortage and Defence Plans

THE coal supply situation has deteriorated in the past fortnight. Although British Railways' stocks early this week were much the same as a week before, they were still at the dangerous figure of 1·7 weeks, rather more than half the amount a year ago. The total stocks in the country now amount to some 10,600,000 tons; the danger point is 9,000,000, and there are still seven or eight weeks of seasonally high consumption before the present danger is past. Yesterday's coal debate in the House of Commons therefore was awaited with disquiet, with particular reference not only to British Railways, but to the railway export industry in Britain, the importance of which is emphasised elsewhere on this page. The measures so far taken by British Railways to save coal by cutting passenger services are, as pointed out in recent issues of this journal, causing relatively small inconvenience to users of the railways. Something more drastic is now necessary, and at the time of going to press with this issue further coal economy measures were being considered by the Railway Executive. Meanwhile, British Railways, already beset with coal shortage and their staff and commercial problems, and the British manufacturers of railway material for both the home and export markets, who are affected by the increasing shortage of raw materials, will be hard hit by the new defence measures. How far they will be affected in manpower is problematical, for it seems unlikely that many of the quarter-million reservists to be called up will be more than young entrants to the railways

and to industry, even if they are not reserved, which is probable in the case of apprentices. British Railways being essential for defence, it is hardly possible for their essential maintenance and improvements, already cut to the minimum for financial reasons, to be reduced further, though measures for improving passenger travel will presumably be postponed. Government re-armament plans however depend much on the supply of machine tools, many only obtainable from abroad, and a scarcity here must affect both railways and the railway industry.

Second Year of Ulster Transport

THE annual report and accounts of the Ulster Transport Authority for its second year, to September 30, 1950, show a trading loss for the twelve months of £213,633, against a trading profit of £52,303 in the first year. The aggregate deficiency for the two years is £544,216, and the reason for the difference between this deficiency and the trading loss of £161,330 for the two years, is due principally to the interest charged on its borrowings and its liability to redeem them. The deficiency on rail operations of £323,098 arose as to £116,706 on the former Belfast & County Down Railway and £206,342 on the former L.M.S.R. (N.C.C.) system. Road passenger operations showed a profit of £259,272, against £359,231, while road freight operations showed a loss of £162,429 compared with a loss of £93,128 the previous year. The report states that a review of the results for the two years would indicate that road passenger transport may possibly lend itself to operation at a reasonable profit although the volume of traffic may not be maintained. Road freight transport, however, was hardly likely to pay interest on the capital invested in it, and probably would be run at a loss, and the volume of traffic handled by it is likely to decrease from year to year as more private lorries are put on the road. With regard to the railways, there was not the business available which would enable them to earn a net revenue, and losses, during the immediate future anyhow, were likely to be substantial so far as they were concerned.

Railway Rolling Stock Exports

FIGURES relating to United Kingdom imports and exports last year are given in the December, 1950, issue of *The Board of Trade Returns*, and they show an increase in value in regard to the exports of engineering products of about 20 per cent. Exports of railway locomotives, carriages, wagons, and parts during 1950 are valued at £31,795,989, which represents a slight increase over the previous twelve months. Of the total railway exports, locomotives of all kinds were responsible for bringing in £8,058,940, which figure compares with £8,208,170 in the previous year, and £6,599,269 in 1948. Last year, the most valuable locomotive market was India, which country took £3,024,535 worth of locomotives, against £1,094,368 in 1949 and only £106,068 in 1948, while the value of locomotive exports to Australia increased in the same period from £186,104 in 1949 to £1,806,520. Rail motor vehicles, with carriages and parts—except axles, tyres, and wheels—sent overseas in 1950 totalled £5,816,853 as compared with £4,363,367, this difference being accounted for largely by increased carriage exports to South Africa. Wagon exports, with parts, increased from £7,909,056 in 1949 to £8,335,033 in 1950. Axles, tyres, and wheels for locomotives, carriages, and wagons came out at £4,715,470 as compared with £4,986,243.

Withdrawal of a Passenger Service Disputed

THE dismissal last week by Lord Blades of the action brought in the Scottish Court of Session against withdrawal of passenger trains on the Newburgh and St. Fort branch, appears to end the matter, unless the pursuers decide to appeal. When the Railway Executive proposed to suspend the passenger service as from July last and close three intermediate stations, certain local authorities and residents sought to have it declared that the Executive was under a statutory obligation to provide a passenger train

service until an adequate bus service was provided for normal users of the line. The pursuers argued that a short-term bus licence which had been granted to a bus undertaking to cater for the district did not meet the situation; they had not been consulted, and the proposed service was unsuitable. An interim interdict against withdrawal was given last June, but recalled in December. Dismissing the case, Lord Blades said that the complaint of contravention of a statutory duty was a matter for the Transport Tribunal, and his court therefore had no jurisdiction. This also would not warrant his continuing the case before the Court of Session whilst the adequacy of the proposed alternative bus service was being discussed before the bus licensing authority.

The Permanent Way Institution

NOW 67 years old, the Permanent Way Institution has grown in influence with the years, and as one of the more practical bodies with which railwaymen are associated, it has played a considerable part in many of the developments which have occurred in railway civil engineering practice. The annual winter meeting and dinner were held last weekend and a report of the proceedings is given elsewhere in this issue. As a year ago, Lord Hurcomb, Chairman of the British Transport Commission, was the principal guest, and on this occasion Lord Latham, Chairman of the London Transport Executive, also attended. Lord Hurcomb dealt with the need for combining financial discretion with the pursuit of the highest technical efficiency. It would be a good thing on occasion if point heaters could be installed throughout British Railways, but the initial cost would be very high and the saving in manual labour might largely be offset by the increased cost of maintenance. London Transport, on the other hand, with its exceptionally intensive traffic and limited track-mileage in relation to point and crossing work, had found it worth while to adopt a system of point heaters, and the Commission had recently authorised it to spend £80,000 on replacing electric point heaters by fluid heaters on the extension of this type of equipment.

Rhodesian and Nyasaland Railway Imports

A RECENT economic survey* shows that in 1948 Southern Rhodesia imported £1,288,424 of railway material, out of a total of £42,600,000 for all commodities. The major items were locomotives and parts, totalling £670,442, and rolling stock, totalling £395,191, of which the United Kingdom shares were £350,262 and £377,888 respectively. Of the 23 locomotives imported, the United Kingdom supplied 8, Canada 12, South Africa 2, and the United States 1. Heavy rails accounted for £38,240, iron sleepers for £111,963, and other miscellaneous railway equipment for £53,960; of these the United Kingdom supplied, respectively, £35,094, £110,000, and £42,000. The figures for imports by Nyasaland show a remarkable increase in three years in imported railway rolling stock and materials. In 1947 the total was £11,153; in 1948, more than double, at £24,271; and in 1949, no less than £128,518. No breakdown of the 1949 figure is yet available, but the United Kingdom supplied almost all items in this category in 1947 and 1948, to the value of £10,288 and £21,171, respectively.

Assam L. of C.

THE joint authors, Major-General G. N. Russell and Brigadier R. Gardiner, of the paper† recently read to the Institute of Transport on the Assam lines of communication in 1941-45, were respectively Deputy Quarter-Master General (Movements & Transportation) and Director of Transportation, India Command, during much of that period. Their lucid and unbiassed account therefore is a military administrator's and technical officer's

story of what has been described in this journal since the war from the civilian railwayman's viewpoint. Points which emerge are: the paucity of resources, including manpower, at the disposal of the civilian and British military authorities until the arrival of the United States railway troops and material; the freemasonry among the railwaymen, military and civilian; the magnitude of the engineering work done—and seriously envisaged, such as the Brahmaputra bridge; and the extent to which the economic life of the country continued. Tea traffic from Assam down to Calcutta rose throughout the war, rice conveyed from surplus to deficit areas saved the lives of millions of the civilian population, and—a small but significant point—a public mail train ran daily each way along the congested metre-gauge section almost throughout the crisis. In his account of actual and possible interruptions to traffic, Brigadier Gardiner perhaps has understated the danger from Japanese attack in 1944.

Southern and Scottish Regions Punctuality

TIMEKEEPING in the Southern Region of British Railways for the four-week period ended September 9, 1950, compared favourably with previous years, as shown by the following figures given by Mr. S. W. Smart, Superintendent of Operation, in the Southern Region edition of the *British Railways Magazine*:—

AVERAGE MINUTES LATE ARRIVAL (WEEKDAYS)							
		Four weeks ended					
		1945	1946	1947	1948	1949	1950
		Dec. 29	Sep. 7	Sep. 6	Sep. 4	Sep. 10	Sep. 9
Steam	...	8 06	2 28	2 12	1 39	2 01	1 63
Electric	...	4 97	1 39	1 17	0 73	0 97	0 70

between both New York and Washington and the Pacific coast cities of Los Angeles and San Francisco. These saved the passenger the change of car, and in most cases also a change of station, in Chicago, but have included lengthy lay-over times in Chicago, and have been available only to passengers prepared to pay sleeping car supplements throughout. Recently discussions have been in progress as to the possibility of running the first through coast-to-coast trains, for both "coach" and sleeping-car passengers, between New York and Los Angeles.

The First Standard Locomotive

THE principal aim of the designers of the first of the British Railways Class "7" 4-6-2 standard locomotives for fast passenger and freight traffic, of which a description is given elsewhere in this issue, are low maintenance costs, a high degree of route availability, and fuel economy. The importance of these characteristics was stressed earlier this week by Sir Eustace Missenden, Chairman of the Railway Executive, on the occasion of the naming of the locomotive (an account of which also is given in the current issue of this journal). Whatever progress is made in this country with electric and diesel traction, the 19,000 steam locomotives of British Railways must be the chief form of motive power for some time to come; with coal supply a pressing (and perhaps permanent) problem, and its cost remaining high, improved efficiency in the steam locomotive is of the utmost importance.

The preliminary trials of the first of the new class, No. 70000—(fittingly named *Britannia* after illustrious forebears on railways in this country)—appear to have shown that the desired economies and efficiency are likely to be realised. Of the 25 engines to be built at Crewe this year, the first 15 will be allocated to the Eastern Region for operating in East Anglia, while the other ten are allocated to the Western Region. The locomotives will be used on main-line passenger and fast freight services of the kind now undertaken by the Western Region "Castle" class, the London Midland Region rebuilt "Royal Scot," the Eastern and North Eastern Region "V2" class, and the Southern Region "West Country" locomotives. It is intended to build 159 engines of this class during 1951.

With a view to implementing British Railways policy of using the resources of all the Regional drawing offices to cover standard locomotive types, while Derby is the parent office for the design of this particular type of locomotive, important design work was carried out in the Swindon, Doncaster, and Brighton drawing offices. The engines have been designed with a view to producing a locomotive with high steaming capacity and ease of maintenance combined with high availability.

The provision of cast-iron bushes in cylinders of cast steel is a feature of modern locomotive design, and appreciably reduces repair days. The cylinder hind covers are a separate casting, a feature which facilitates re-boring of worn cylinder liners during intermediate repairs, a much simpler operation than when the hind covers are cast integral with the cylinders. The piston head incorporates a bronze spring-loaded slipper which carries the head clear of the cylinder barrel liner and should assist in distributing wear evenly in the cylinder liners; provision of roller-bearing axleboxes should increase availability.

The degree of route availability achieved is remarkable, when the large number of factors affecting the lines of the former railway companies is taken into consideration. The latter include the quality of coal formerly obtained (affecting the size and weight of the locomotive in relation to load) and length of turntables. One of the first routes to be worked over is the Liverpool Street to Norwich *via* Ipswich line of the former L.N.E.R.; in contrast to this are the Southern Region routes over which work the "West Country" class described in the July 20, 1945, issue of *The Railway Gazette*; the latter class having an axle-load of 18 tons 15 cwt., were built primarily for working over the restricted routes west of Exeter; the axle-load in the new standard design is 20 tons 5 cwt., which even so is not heavy.

The new design cannot be said to embody any revolutionary feature; but with the advantages commented on above, its two-cylinder design—(although the engine will do work now being performed by three- and four-cylinder locomotives)—and other features conducive to easy, and therefore relatively inexpensive maintenance, it should go far to fulfil the requirements of British Railways in their present state.

Transport Charges in Retrospect and Prospect

THE inability of services, in contrast to commodities, to be stored, with the consequent necessity for plant to cover peak demands, and the dependence of the price of services on their value to the consumer, rather than on their cost to the producer, are stressed by Mr. J. R. Pike, Chief Rates & Charges Officer, Railway Executive, in his recent paper read to the Railway Students' Association, London School of Economics. Mr. Pike outlines the effect of these factors on transport charges, of which he traces the historical development from the eighteenth century turnpike to the Transport Act, 1947.

As to the statutory obligation of the British Transport Commission to bring about an integrated public transport system, Mr. Pike, confining himself to a charges scheme for merchandise, points out that, hitherto, efforts to secure co-ordination of rates have been by voluntary agreement to maintain a given level. The railways among themselves, and in their later dealings with coastwise shipping and inland waterway carriers, were examples of this. It was, says Mr. Pike, the motive behind the understanding reached between rail and road as a result of the "Square Deal" campaign shortly before the last war, but arrangements of this kind require that the parties thereto should be organised and disciplined, and in the road haulage industry as it then was it is hard to see how the same methods could have been applied in practice. This was only a form of price agreement among competitors and its results fell a long way short of the intentions of the Transport Act.

The expression "co-ordination," Mr. Pike suggests, can be applied to measures agreed between separate undertakings for their mutual benefit, and is not incompatible with independent financial interest and management, whereas "integration" suggests a complete fusion of activities and can only be realised when financial interest and management are one, which circumstances were brought about for the first time by the Transport Act. "Integration" can only mean that the best of available elements should be forged together in a new national transport service. The ascertainment of what is the best, from both the user's point of view and that of entailing the lowest measure of real cost, must take time and careful research. Meanwhile in the present situation there is an understandable reluctance on the part of the transport user to abandon a position which he regards as to his present advantage. One manifestation of this is the right of freedom of choice embodied in the Act. It is not now simply a question of matching rates by alternative and independent services, but rather of devising a rates structure with a view to the place which each form of transport is to take in the new transport economy. The charges scheme in itself cannot determine that matter but it can be a very material influence.

The "value" factor was, Mr. Pike states, indigenous to the ground upon which the older forms of transport were first cultivated. But the swing over from the provision of the "way" as the primary business of transport to the actual business of carrying has led to a clash of ideologies. The outline approach to the merchandise charges scheme may be a further recognition of the march of events, in that it gives far more weight to the physical attributes of the consignment and thus indirectly reflects cost rather than value of service.

Many technical problems arise from the conception of a common foundation to the future rates structure. Railway and canal are both still specialised ways, requiring that traffic (except where there is direct access) should be

brought or taken away through suitable terminals, and otherwise confining movement to the specialised way; but road transport, except where groupage is entailed, has no need of a terminal in the railway or canal sense. Railway rate-making, continues Mr. Pike, therefore has followed a technique in which figure the various elements involved, i.e. cartage, terminal services, and so on, whilst road haulage is on a different footing.

The Transport and Storage of Coal

ON January 16 Mr. Lionel G. Locket, M.Inst.F., F.I.D., read a most interesting, well-balanced and able paper to the Institute of Fuel on the transport and storage of coal for the use of industrialists and manufacturers. He dealt with the subject from the point of view of a coal distributor, whose main function formerly was to obtain for the consumer the right coal to suit his plant, at the right price and at the right time. The distributor cannot perform that duty in full any longer, because of the strict programming of coal, but must take from the National Coal Board whatever the descriptions of fuel which are allocated to him.

We join issue with him, however, on his suggestion that, as the result of the war, there is a tendency for consumers' requirements to be subordinated to railway requirements. On the other hand, we agree entirely with his contention that the coal supply position, and not the transport conditions, should be the governing factor in determining which division or area should supply a particular consum-

wagon back in to traffic again. This attitude, he felt, was not unreasonable, provided that sympathetic consideration is given to circumstances beyond the control of the consignee which, of course, is the practice generally followed by the railways.

The rest of the paper concerned canal and sea transport, the storage of coal on consumers' premises and proposals to mechanise coal depots, which Mr. Locket did not advocate. Obviously he had taken great pains over the preparation of his address, which was a useful survey of a wide subject, and provoked an informed and stimulating discussion.

Standardisation of Coaching Stock

IN a paper on standardisation of coaching stock read to the Institution of Locomotive Engineers on January 17, Mr. S. F. Smith, Technical Assistant to the Carriage & Wagon Engineer, Southern Region, British Railways, said that, after the amalgamation of the railways in 1923, each of the four main-line railway companies independently standardised its coaching stock vehicles, selecting those best suited to its requirements. This had the effect of reducing to a minimum the types of vehicles and components on each railway, and the changes introduced subsequently established the present standards of each railway. Variation in overall lengths and centres of bogies restricted interchange working.

After nationalisation, said Mr. Smith, the Railway Executive Member for Civil Engineering produced a roll-

Particulars	L.N.E.R.	L.M.S.R.	S.R.	G.W.R.	British Railways
Length of body over ends	61 ft. 6 in.	57 ft.	64 ft. 6 in.	64 ft.	64 ft. 6 in.
Length of body over corner pillars	60 ft.	57 ft.	63 ft. 6 in.	63 ft.	63 ft. 6 in.
Bogie centres	43 ft. 6 in.	43 ft. 6 in.	46 ft. 6 in.	44 ft. 6 in.	46 ft. 6 in.
Body framing	Timber	Timber	Timber	Timber	Steel
Type of bogie	Double bolster	Single bolster	Single bolster	Double bolster	Double bolster
Bogie wheelbase	8 ft. 6 in.	9 ft.	8 ft.	9 ft.	8 ft. 6 in.
Dia. of wheels	3 ft. 7 in.	3 ft. 7 in.	3 ft. 6 in.	3 ft. 7 in.	3 ft. 6 in.
No. of third class compartments	7	7	8	8	8
No. of seats, three-a-side	42	42	48	48	48
No. of seats, four-a-side	56	56	64	64	64
No. of lavatories	2	2	2	2	2
Type of drawgear	Auto-coupler	Screw-coupling	Auto-coupler	Screw-coupling	Auto-coupler
Type of gangways	Pullman type	British standard type	Pullman type	British standard type	Pullman type
Weight of steel underframe	5 tons 7 cwt.	4 tons 14 cwt.	5 tons 16 cwt.	5 tons 18 cwt.	5 tons 9 cwt.
Weight of body framing with steel panels	3 tons 17 cwt.	3 tons 19 cwt.	3 tons 19 cwt.	3 tons 14 cwt.	3 tons 10 cwt.
Tare weight (empty)	32 tons 18 cwt.	30 tons 8 cwt.	34 tons 5 cwt.	31 tons 6 cwt.	32 tons 10 cwt.

ing region or a particular consumer. In fact, in the discussion which followed the reading of his paper, officers of the Railway Executive and N.C.B. made it quite clear that, whilst during the war and immediately afterwards, transport considerations affected coal allocations, this factor had progressively declined in importance to the stage that, for some time, problems of supply had become the ruling consideration and questions of transport of relatively little importance.

Mr. Locket referred to the steady tendency for railway wagons to become larger and described the evolution of the 16-ton five-door standard coal wagon, which he suggested had probably been delayed by reason of the former private ownership of wagons. He also remarked incidentally that, in the past, large distributors, anxious to make certain that supplies were not held up through a shortage of wagons at the pits, adopted the principle of private ownership of wagons and made a profit, as the amount charged for wagon hire by the railway companies was greater than the cost of running a fleet of privately-owned wagons. The soundness of this contention, we assume, would depend very largely on the arrangements made for the expeditious turn-round of wagons on arrival at destination.

In a reference to difficulties experienced by the railways in meeting peak wagon requirements for coal traffic and other seasonal traffics, such as sugar beet, in the weeks immediately preceding Christmas, when snow and fog frequently adversely affect traffic movements, he remarked that it is scarcely to be wondered at that the railways insist on substantial demurrage charges to get empty

ing-stock, gauge giving a wide route variation over the whole of British Railways, and it was possible to adopt the 63 ft. 6 in. length for all corridor passenger vehicles. Certain conditions were laid down for the new standard coaches. These were: adoption of Buckeye couplers and Pullman gangways; increased strength; better riding quality; and increased water capacity. Comparisons between the main-line railway standard third class coaches and the new standard British Railways third class coach are given in the table above.

Dealing with increased end strength, Mr. Smith said that present-day British coaches have a lower resistance to permanent deformation than many other countries, as shown in the table below:—

	Tons
Britain, S.R.	80
" L.N.E.R.	120
Switzerland	140
Germany	200
U.S.A. and Canada	356
Russia	360

It was considered desirable to raise the British figure to 200 tons. Examination of existing underframe designs indicated that stresses were not uniformly distributed; this was confirmed by end-loading tests carried out at Ashford. Designs were prepared of the externally-supported body which, in addition to withstanding an end load of 200 tons on either the automatic couplers or side buffers, would enable the underframe to carry a distributed passenger load without assistance from the body. It was also clear that the underframe as designed was suitable for both main-line and suburban services. With the additional strength provided in the body ends to support the Pullman gang-

ways it was estimated that this arrangement would enable skeleton underframes and bodies, including exterior paneling and floor, to be constructed weighing less than 9 tons for main-line stock and 8½ tons for suburban stock; as a result of this investigation it was decided to adopt the separate underframe and body design.

On the 12 standard types of vehicles, final decisions were taken only after inspection by the Members of the Railway Executive of existing main-line stock. Close co-operation of the "user" departments was also maintained, as well as the Works Production Committee, to ensure ease of manufacture. The underframes and bogies have been designed to make full use of British standard rolled-steel sections and plates manufactured in accordance with B.S. Report No. 24, Par. 6, Specification 18. If cost had not been of such paramount consideration, it would have been possible to make use of aluminium alloys of stainless steel. There were problems of manufacture and maintenance with these materials which called for a thorough investigation and trial under British conditions before wholesale adoption. It was, however, the intention of British Railways, as soon as opportunity offered, to design and construct a complete aluminium train, to obtain full-scale data on the economics of the use of this material.

The interior arrangements of the first and third class compartments and saloons for the new stock are generally similar to those of the latest Regional stock. For the guard's compartments, the layout provided was agreed, after discussions by the Railway Executive with the N.U.R. and inspection of prototypes. The method of construction of the British Railways new stock, which is to build the body as a separate unit, is basically similar to that used by British contractors and overseas railways. It entails the production of complete body sides, ends, and roofs, which can be readily fabricated as sub-assemblies on suitable welding jigs, and when completed erected on the underframes by use of reference jigs, by which method it is possible to economise in costs. This procedure was developed as standard practice on the London Midland Region. While standardised methods and design should lead to economic production of rolling stock and its maintenance, it will be necessary to relate underframe supplies with body construction to maintain a regular output if the full effects of standardisation are to be realised.

Illinois Central Centenary

AMERICA is a young country, growing at an unprecedented rate. One of its ten largest railways, the Illinois Central, was not chartered until February 10, 1851, when it received the first federal land grant in aid of the construction of any line. What is now the "Main Line of Mid-America" thus celebrates its centenary a quarter of a century after the London & North Eastern Railway Company kept the 100th anniversary of the opening of the Stockton & Darlington Railway. Like the London & North Eastern, the Illinois Central has struck a medallion in honour of the occasion, but of more interest to us is the story of the railway, told by Mr. Carlton J. Corliss in a handsome volume* of 470 pages, accompanied by a map and numerous illustrations.

The writing of the book must have involved a large amount of research, even if the author was able to draw from many years of experience in the engineering and public relations departments of the Illinois Central. He is now a member of the public relations staff of the Association of American Railroads, so that he had ready access to the extensive library of the Bureau of Railway Economics. The extent of the available material can be judged from a centennial bibliography of the Illinois Central, compiled by the Bureau's Reference Librarian, Miss Helen R. Richardson. Her catalogue runs to 225 pages of print, each containing about a dozen entries, though she has not tried to cover legal cases or hearings before the

Interstate Commerce Commission or State Commissions. In a foreword, Mr. Wayne A. Johnston, President, Illinois Central, expresses the indebtedness of his company to Miss Richardson, who canvassed some 30 libraries to make sure that nothing of consequence was omitted from her lists.

Mr. Corliss has condensed this mass of information into a book that is easy to read. He shows that the Illinois Central has some special claims to fame. Among U.S.A. railways, it is one of the few which never have been in receivership, and never have defaulted on a dollar of bonded debt. It was the first U.S.A. railway to bring immigrants into its territory on a large scale, advertising to attract settlers and to develop industries. It was one of the first lines to run sleeping cars, and started the use of refrigerators for the carriage of fruit. In its early years Abraham Lincoln was one of its leading attorneys and a number of other prominent Americans was concerned in its development.

The Illinois Central today operates 6,546 route-miles extending from Sioux Falls east to Chicago and then south to the Gulf of Mexico. Freight is the lifeblood of the line, producing eight times the passenger revenue. In 1949, net ton-miles averaged 7,804 per mile of road per day, made by train loads of 1,140 tons moving at a speed of 18 miles an hour. Net ton-miles per freight train-hour averaged 20,300, in spite of the fact that 18 per cent. of the train-hours were spent on shunting at wayside stations. These satisfactory results helped to keep the operating ratio down to 77.4 per cent. On an average, only four or five passenger trains pass over a mile of road each day at a speed of 36 m.p.h. As soon as the war was over the Illinois Central spent \$10,000,000 on diesel-electric and streamline passenger vehicles. Last year it worked eight diesel-powered services. Two 14-car trains provide a daily service in both directions between Chicago and New Orleans, running 912 miles in 15 hr. 55 min. The timing is 2 hr. 5 min. less than the pre-war schedule.

Mr. Corliss records that all passenger coaches on long journeys were air-conditioned by 1946, a necessary precaution in a region of wide climatic range. He is mistaken in saying that an all-electric dining car, placed in service between Chicago and St. Louis in 1949, was "the first in the world." In Great Britain an all-electric kitchen-car was used on the old Great Northern Railway in 1921. During the next ten years Sir Nigel Gresley improved the design of these cars, and their use was extended to all sections of the London & North Eastern Railway. One of Sir Nigel's innovations was the triplet articulated restaurant car set, made up of a first class and a third class restaurant car, separated by an all-electric kitchen-car.

Mr. Corliss is on surer ground when he says that the Illinois Central is the leading banana-carrying railway. The enterprise it displayed in distributing the new fruit helped New Orleans to become the chief banana port. The railway reaped a rich reward. In 1880, it carried 22 wagons of bananas; in 1947, the forwardings reached an all-time record of 52,750 wagon loads—an average of over 1,000 wagons a week all the year round. The chapter on this subject is interesting, as is a second chapter describing how the railway took an active part in extending the Mid-American coal mining industry, until it carried over 20,000,000 tons of bituminous coal each year when trade was brisk. A third chapter, "Building for Tomorrow," tells how the Illinois Central promoted agriculture by launching dairy farming and scientific stockbreeding programmes; how it encouraged tree planting and orchard crops, even carrying seedlings free of charge; and how it co-operated with traders in finding over 9,000 sites for new workshops adjoining its lines.

The author rounds off his story with an account of the steps taken during the past five years to restore the property to a first-class condition and to reduce the burden of funded debt, plus interest. By January, 1950, both aims were achieved, and the company resumed the payment of dividends on its common stock, whose holders had not received any return since 1931. So the Illinois Central enters on its centennial year in high fettle, claiming to be, in its President's words, "a progressive, forward-looking railroad," with "its eye on the future—not on the past."

* "Main Line of Mid-America: The Story of the Illinois Central." By Carlton J. Corliss. Creative Age Press, 11, East 44th Street, New York, 17. Price \$4.75.

LETTERS TO THE EDITOR

(The Editor is not responsible for the opinions of correspondents)

Freedom of Speech

January 9

SIR,—Dr. Ransome-Wallis, in your January 5 issue, voices an observation that probably many other railway enthusiasts have also made, concerning the outlook of certain railway employees towards their freedom of speech.

Besides having met the employee suspicious of one's identity, I have come across an assumed secrecy about information that is readily accessible to the serious enthusiast, without his having to make enquiries. The information required could easily be obtained by observation, were more time available.

I can instance a conversation I had with an inspector on Sheffield Station. Having travelled over the former Midland line from Bristol for the first time, I was interested in the performance of the Class "5" locomotive on the heavily-loaded train. On alighting at Sheffield, I discovered that we had taken a pilot somewhere, presumably Chesterfield. As an inspector was nearby, I enquired from him where the pilot had been attached. After he had discovered that I was merely a private citizen interested in locomotive performance, he said he was not allowed to tell me the information I wanted.

To the recorder of locomotive performance, the tare weight of the train is of importance, and can readily be obtained by walking the length of the train and noting the figures marked on the end of every carriage. Should there not be time, and the recorder ask the guard for the weight of the train, the chances are that he will be met with a statement to the effect that "it's none of your business."

Yours faithfully,

PETER W. B. SEMMENS

52, Belle Vue Grove, Middlesbrough

Delayed Goods

January 14

SIR,—Mr. E. R. B. Roberts's letter in your issue of January 5 states that the average load of our freight trains is 150 tons; as this is obviously a mistake it should not be necessary to point out that the average is somewhere between 500 and 1,600 tons, varying according to the class of traffic. More traffic passes through London Bridge Station than by all routes into Chicago.

I, too, have heard indirectly the rumour that consignments take a week or a fortnight between London and the north but have had no occasion to check it. On the subject of shunting a train for another to pass, surely Mr. Roberts does not expect a passenger or fast perishable to be side-tracked and put behind a slow, heavy mineral?

The Americans seem to be overhauling some of their traffic handling arrangements. The train order system was good enough where traffic was fairly light and nothing much happened, but it fell flat when things got busy and out of place. Trains were hung up for hours in sidings because orders could not be got through to them, and when they did they were out of date and fresh orders were required. This antiquated method is now giving way to something more up to date. The whereabouts and progress of trains over long lengths of line are shown automatically on track diagrams and the operator can hold trains at sidings or move them forward by signal as circumstances permit, five or six hours are saved on occasions.

Long- and short-distance averages are quite separate propositions; the miles per gal. of a car when shopping in a town is quite different from that on a run of several hundred miles. The 900 miles between New York and Chicago was mentioned; this is only a medium run in the United States, where 3,000 or 4,000 may be covered. Taking England, Wales, and Scotland together, where can two stations be found with 900 miles between them without going round in circles?

Large wagons suit some traffic but not all—traffic for

which smaller wagons are better suited and which the United States miss. We are not quite so daft as to use one size of wagon if another would suit us better. Changing national habits may make larger wagons desirable; there has been a tendency in that direction for some time, but the change will be gradual.

Yours faithfully,

COURTENAY BARRY

The Old Manor, Salisbury

Southern Region Pacifics

January 4

SIR,—The valve gear was designed to reduce the unsprung weight on the track, to improve valve gear lubrication, and to provide a gear whereby three sets could be provided between the frames.

Mr. Bulleid in his paper read before the Institution of Mechanical Engineers on December 14, 1945, stated: "The valve motion itself has given no trouble and has one especially commendable feature in that the valve events remain unchanged in service, the engine keeping its regular beat"; and also: "A point that was considered was the effect of slackness in the chain. Assuming a sag of as much as 3 in., the design of the rocker chain is such that most of the sag under load is absorbed by the rise of the rockers up the teeth. Only the small remainder affects the valve events which will be delayed. This can be corrected by altering the cut-off. The chain drive has behaved well, in spite of the many misgivings the use of chains gave rise to, and no chains have broken to date." What do the critics say to this?

Apparently the oil bath does leak, but I see no inherent weakness in the arrangement. The aspiration was that the oil bath would mean that the valve gear and middle big end would need little attention between normal visits to shops.

The Bulleid Pacifics are a relatively complicated design, and the nearer one gets to the ideal of one engine—one crew, the better the results. Until some 18 months ago, Exmouth Junction depot had five of these engines, which had been there since they were built in 1941, mostly handled only by top link men, and little trouble was experienced with them. But with the number increased to ten, and with through running to Waterloo, where they became almost common users, failures became more frequent.

Yours faithfully,

J. B. LATHAM

17, Wheatsheaf Close, Woking

Insulated Rail Joints

January 22

SIR,—With reference to the correspondence which has appeared in your December 8 and January 12 issues on the subject of insulated rail joints, perhaps you would permit me to state the case for steel joints.

Although agreeing that a large number of components is required, compared with the comparatively simple laminated wood joint mentioned, I cannot agree that this is necessarily a weakness. After all, if the design is good, once the joint is assembled it should not require any further attention beyond tightening of the fishbolt nuts, as has to be carried out with all fishplates under traffic.

I feel that the criticisms levelled at the steel joint were intended to apply to the obsolete design which called for insulation material to be fitted between the fishing planes of the plate and rail—thus requiring it to act as a buffer to the full hammer blow—and not to the joint we have supplied in thousands over recent years. Mr. McCullagh's six criteria can equally well be said to be fulfilled by my company's latest design of steel insulated joint, which does, however, possess the additional advantage over laminated wood that it offers metal-to-metal support to the rail ends.

I am prepared to agree that my company's earlier 95 R.B.S. rail joint has one feature which in present-day conditions has led to difficulties, namely, the depth of the side plates below the rail. On tracks suffering from arrears of maintenance these have come into contact with wet ballast and electrical failures have unfortunately occurred.

My company's new joint eliminates this; its first cost is about the same as the previous standard 95 R.B.S. joint and its life should equal that of ordinary fishplates. It will not require any maintenance other than that normally given to plain joints.

Therefore, I would say that the metal-to-metal insulated joint is in most applications superior in strength and length of life to joints where the insulation takes the load, but that those features which because of bad track conditions have led to electrical failure, must be eliminated. My company has proved that this task is not unsurmountable.

Yours faithfully,

J. HURST-HODGSON

Henry Williams Limited, Darlington

Railway Efficiency

January 18

SIR,—I quite agree with Mr. Peter Collins that my contributions to this correspondence have been of value only in a negative sense. I have not advanced any reason or cure for the lack of railway efficiency, but merely attempted to detract from, and indicate alternative opinions to, panaceas which to me savour of personal aspirations or disappointed hopes. Is it just coincidence that if small stations were linked and the stationmasters upgraded, Mr. Collins would probably be one of those affected? Or, if fewer graduates were appointed to positions at district officer level, Mr. Rose's chances of selection would be proportionately greater?

My experience, limited though it is in Mr. Collins's opinion, is that the cause of any inefficiency is far greater than the need for re-classifying small stations or deriding graduates, but to forestall the obvious retort I will add that if my opinion is correct, the cure would be delayed rather than accelerated by discussion through the correspondence columns of any journal.

Yours faithfully,

H. W. WARWICKER

7, North Station Road, Peterborough

Streamliner Success

January 28

SIR,—Mr. R. Bell, in your January 26 issue would appear to have been led astray by a mass of passenger revenue statistics which tend to disguise the facts and difficulties of passenger-train operation in the United States.

To comply with the Interstate Commerce Commission regulations, the railways have to operate passenger trains. They therefore operate the trains in a manner intended to bring in the biggest possible income, including operating streamliners on many routes. The term "streamliner success" does not depend on whether or not passenger services are "in the red," but on whether the revenue would have been considerably less were it not for the operation of the streamline trains. On all routes there is much evidence—collected by polls and other means—to show that the passenger revenues are in fact higher due to the operation of the streamliners than they would otherwise have been without these latter trains.

Mr. Bell states that much of the traffic carried in streamliners is not new business. Even if this statement were true, it is surely not the most important factor, which is, how much of the traffic now carried would have drifted away from the railways had they not commenced operating streamline trains? However, railway administrations have discovered that streamliners do attract new business. Recent Southern Pacific figures show that up to 19 per cent. of the passengers travelling in the "Shasta Daylight" would have used other means of transport between Portland and

San Francisco had not a streamliner been inaugurated on that route.

Perhaps the most striking example of streamliners attracting passengers is to be found on the Burlington. In the dark days of non-competitive "standard" trains, the C.B. & O. was carrying between Chicago and the Twin Cities an average of only 14 northbound and 12 southbound daytime passengers. The "Twin-Zephyr" service was inaugurated in April, 1935, with one high-speed train daily in each direction; by June of the same year the service had become so popular and overcrowded that the two trains each made a complete round-trip daily, becoming known as the "Morning Zephyrs" and "Afternoon Zephyrs." The Milwaukee and Chicago & North Western began to compete with their streamline trains; all three railways gradually lengthened their trains and increased the service so that by the late 1930's the railways had not only won back from other means of transport the Twin Cities passenger traffic, but also had succeeded in creating new traffic which they still retain.

Lastly, any direct comparison between British and American passenger revenues is impracticable because of the much stiffer competition that the American railroad managements have to face. A few words only will suffice to illustrate this. The United States has 657 persons per route-mile of railroad compared with some 1,156 persons in this country. One person in three owns his own automobile in the States. Their long-distance bus schedules are considerably faster than here, and there is intensive internal air competition which is not an important factor in Great Britain.

From the above it will be seen that passenger services on the North American continent start under a considerable disadvantage compared with our own, the most important contributory factor to the American services being the fight that the streamliners are putting up to assist revenues.

Yours truly,

GARNOCK

Kilconquhar, Fife

London Railway Plan—A New Approach Needed

January 26

SIR,—Your correspondent's article in your issue of January 19 stresses the point that tube construction has become so expensive that extensions in the near future are out of the question. At the same time, he proposes an extensive electrification of existing surface lines, but it would appear that the exorbitant costs at present prevailing would make even this prohibitive, assuming always that the equipment could be obtained.

Much could be done without spending a penny on construction if, instead of regarding British Railways as their last source of additional traffic, the London Transport authorities would realise that British Railways provide plenty of existing facilities which could be used to relieve existing overcrowding. Electrification, of itself, is not enough, as the sight of half-empty electrics running into Broad Street during the rush hours is proof.

Fares and facility of booking, publicity, even an acknowledgment by London Transport that there are other facilities in its area, are all factors that could make a great difference if a determined effort were made. In the space of a letter, it is not possible to give detailed proposals, but inter-availability of tickets between London Transport railways and the main lines, and publicity given on the worst overcrowded London Transport sections to alternative routes by British Railways are examples of what might be done.

Yours faithfully,

D. H. MILES

36, Oakleigh Avenue, N.20

DIESEL ENGINE USERS ASSOCIATION.—At a meeting of the Diesel Engine Users Association to be held at Caxton Hall, Westminster, London, S.W.1, at 2.30 p.m. on February 15, there will be an informal discussion on "Operating Problems."

THE SCRAP HEAP

To Humiliation—£130

A passenger on a New York Central Railroad train was awarded £130 damages because a conductor falsely accused him of travelling without a ticket. He said the incident "humiliated" him.—*From "The Daily Telegraph."*

Helicopter Station Plan Rejected

The Court of Common Council at the Guildhall, London, agreed without discussion on January 25 to a recommendation of its improvements and town planning committee turning down a plan to build a helicopter station on the roof of an exhibition hall and office block in Aldersgate Street. The committee stated the proposal would not conform to the development plan.

Record Out-of-Gauge Loads

Railway coaches for Argentina, railway wagons for Europe, and locomotives for Egypt were among the 8,142 out-of-gauge loads carried by the London Midland Region of British Railways during the past 12 months. Transporting them frequently meant the moving of signals and line-

side huts and crossing gates before the loads could pass safely. These out-of-gauge loads were a record number for twelve months on the L.M.R.

Southern Pacific Courtesy

My brother lives some miles outside San Francisco and travels by Southern Pacific Railway daily to that city. Should there be any interruption to the normal service the passengers receive a printed explanation left on the seats the next day. Such courtesy must go a long way to allaying the irritations of daily travel.—*From a letter to the "News Chronicle."*

Making Them Railway Minded

The shortage of first class new material is but a phase of a problem which is being tackled in a different way by the Texas & Pacific Railway in the United States. The intention is to revive interest in railways and railway travel, to bring to life again the big-eyed youngster who used to spend every spare minute in watching the trains come in and who collected pictures of engines and trains with the same enthusiasm

that some modern youth collect pictures and autographs of film stars. The Texas & Pacific Railway is trying to encourage the train-riding habit among the children in its area. Tours are arranged to various points of interest and the co-operation of schools has been obtained so that a distinct educational policy forms a background of the train travel. Inclusive charges are made so that when a boy or girl goes on one of these tours, budgeting becomes a simple matter of one single outlay.—*From "South African Railway News."*

100,000 L.M.R. Bank Books

More than 100,000 bank books belonging to members of L.M.R. staff and their relatives who have accounts in the L.M.R. savings bank were sent in to Euston recently for annual audit. The books came from all over Britain and were included in the largest yearly audit since the bank started in 1924. All the books had to be checked, audited and returned within three weeks. Total staff on the L.M.R. in a count taken last October was 191,616. — *From the London Midland Region edition of the "British Railways Magazine."*

Roses in June

I heard a song on a winter's day,
When the snow piled up in the six-foot way
And the north wind blew with its bite
so cruel
And the world was starved and short
of fuel;
It was sung to a quaint little country
tune:
"Come frost, come snow, there'll be
roses in June."

'Twas a grand old guard, in his uniform,
And his smiling face made me
strangely warm;
A union man of the good old school,
Friendly and faithful, but no one's fool,
And where'er he went he hummed his
tune:
"Come frost, come snow, there'll be
roses in June."

Now, my grand old guard has passed
along,
I miss his smile and I miss his song,
But the world to me is a sweeter place
And I shoulder my load with a better
grace
As I set my course to his cheery tune:
"Come frost, come snow, there'll be
roses in June."

"Roses in June"—what a truth lies
there
To comfort a soul in dark despair!
Whenever the going seems too hard
I think of the faith of that dear old
guard:
"Cheer up!" I say, "Let's have a
tune—
"Come frost, come snow, there'll be
roses in June."

A. B.



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OVERSEAS RAILWAY AFFAIRS

(From our correspondents)

EAST AFRICA

Meeting of Transport Advisory Council

The East African Transport Advisory Council met in Nairobi recently, and recommended the expenditure of approximately £650,000 on new works projects. Some £594,000 is for works on railway account and the rest for port development. The railway expenditure covers the purchase of 20 bogie and 50 four-wheel cattle wagons, the conversion of eight covered goods bogie wagons for use as refrigerated vans and the manufacture of four insulated containers at a total estimated cost of £193,000.

Another important item is the provision of increased reserve storage capacity for oil fuel towards which £150,000 has been allocated. Fourteen goods wagons are to be converted for use as cabooses, at an estimated cost of £76,000. Four new 200-ton lighters are to be acquired for the port of Mombasa for £32,000.

The Council recommended that the estimates of revenue and expenditure for the East African Railways & Harbours services, as presented by the General Manager, should be submitted to the Central Legislative Assembly for approval. A total revenue of £10,985,161 is expected (£9,042,000 from railway sources and £1,943,161 from harbours).

These estimates are framed on the assumption that agricultural, industrial and commercial activities will remain at the same high level as in 1950. The estimates of working expenditure (excluding renewals fund contributions) total £8,210,101 (£6,735,181 is on railway account and £1,474,920 on harbours account). The increase of £416,531 on 1950 budgeted for reflects the continued rise in the cost of materials and stores and provides for the recruitment of additional staff needed to cope with the increasing volume of traffic.

Extension in Uganda

The Council considered a project for the extension of the Kenya-Uganda main line from Kampala into Western Uganda, and recommended that the East African Central Legislative Assembly should be invited to approve the construction of the first stage of this extension from Kampala to Mityana. Destined ultimately to provide a rail outlet for the products of the copper mines situated near Kilembe in the foothills of the Ruwenzori mountains, the extension will be constructed in two sections: first a line from Kampala to Mityana, 50 miles and, second, an extension from Mityana to Kilembe.

The route of the line from Kampala to Mityana has been surveyed and the construction of this section will begin as soon as authority has been given by the legislatures concerned. At the same time a detailed engineering and economic survey will be undertaken of the

second portion of the line from Mityana to Kilembe, which will take about a year to complete.

Southern Tanganyika Development

The curtailment of the East African groundnut scheme will not affect the completion of the Tanganyika Southern Province railway and port. Work is in progress on the construction of two deep-water berths at Mtwara, and a line is now being built from Mtwara to Ruio to connect with the Mkwaya-Nachingwea railway. Although the activities of the Overseas Food Corporation in the area are to be drastically reduced, the Tanganyika Government proposes to undertake various development schemes in the Southern Province which promise to provide substantial tonnages of traffic for the new railway and port. The Railway Administration may be called on to build a 60-mile extension westwards from Nachingwea, under guarantee by the Tanganyika Government, which would form the first stage in the completion of a rail link to Lake Nyasa.

CANADA

Freight Rate Increases

The Board of Transport Commissioners began hearings on January 19 on part of the December 21, 1950, application of the railways calling for an immediate general rate increase of 5 per cent. The companies are seeking the increase to offset expenses of a 7 cents an hr. wage increase estimated to cost them \$30,800,000 a year. The proposed freight increase would yield about \$17,500,000 a year.

Hearings on the 5 per cent. application follow a session before the Transport Board at which the railways were asked to bring in proposals for equalisation of freight rates throughout Canada. The board has been engaged on an equalisation study for about 2½ years, and this was its first public session. Six of the provincial governments recently applied unsuccessfully for deferment of the equalisation sessions pending the report of the Royal Commission on Transportation.

UNITED STATES

New Composite Cars, G.M. & O.R.R.

Gulf, Mobile & Ohio Railroad has recently introduced four new composite cars, each containing one compartment, three bedrooms, eight roomettes, and four day "sections." These vehicles are 85 ft. in length and weigh 67 long-tons, and the bodies are of low-alloy high-tensile steel with the sides built on the girder principle. Heavy anti-collision vertical end-posts of open-hearth steel are riveted to the cast-steel underframe end members. A folding partition separates the compartment from one of the bedrooms. Each room has individual air-conditioning and Vapor zone heat

controls. Circulating ice water is supplied to all rooms, and the equipment includes a seven-ton ice engine as part of the air-conditioning plant.

Pennsylvania Wagon Production

Of the orders placed in 1950 by the Pennsylvania Railroad for 20,000 new freight wagons costing \$114,000,000, 3,500 were delivered by December 31, with 6,400 additional new wagons due for delivery by the end of March. Some 6,610 new wagons have already been completed in the railway's own works.

The Pennsylvania Railroad has also completed since August the renewal of 17,000 existing wagons, and intends to rehabilitate 17,000 more before the middle of this year.

FRANCE

S.N.C.F. 50-Cycle Locomotive Trials

Results of trials of the first 20,000 V., single-phase, 50-cycle locomotive, CC 6051, on the newly electrified line from Aix-les-Bains to Annecy, were considered most encouraging, according to a statement supplied by the S.N.C.F. to the *Revue Générale des Chemins de Fer*. The locomotive was described in *The Railway Gazette* of December 29. Despite the handicap of the complex equipment designed for operation on a.c. or d.c., the locomotive proved capable of fulfilling requirements in both conditions.

Commutation of the motors was satisfactory, confirming the results previously obtained in bench tests. Regenerative braking operated smoothly, and showed that braking was possible down to very low speeds. Starting was effected without difficulty on 1,500 V., d.c. in Aix-les-Bains station, which is on the d.c. electrified line from Culoz to Modane, a.c. for the traction motors being supplied in these circumstances by the rotary converter. Switching from 1,500 V. d.c. to single-phase 20,000 V. operation, or vice versa, was effected easily by lowering the pantographs and turning the handle on the "single-phase-d.c." panel, the change-over switchgear and safety interlocks working perfectly.

Driving control by means of the 16 transformer tapings was at least as good, if not better, than on the d.c. locomotives. Top-changing by means of 16 electro-pneumatic contactors, in addition to which there are three line contactors.

Gradients on the line are very varied and therefore suitable for starting, running and braking tests. On one run from Aix-les-Bains to Annecy, the locomotive hauled a 640-ton passenger train, making test stops on the Grésy, Albens and Marcellaz inclines. Restarting up the Grésy incline of 1 in 67 presented no difficulty. A 950-ton passenger train was hauled from Annecy to Aix and similar tests were made on gradients of 1 in 125. Other

trials included hauling a 850-ton goods train from Annecy to Aix, and another of 680 tons from Aix to Annecy.

IRELAND

Strike Settled

Efforts to end the six-weeks' strike of C.I.E. workers made by Dr. J. C. McQuaid, the Roman Catholic Archbishop of Dublin, have been successful. The strike, which concerned more than 1,600 men, began on December 16, after the I.T.G.W.U. had rejected proposals, accepted by the other railwaymen's unions, for wage increases ranging from 4s. to 11s. weekly, and claimed a general increase of 22s. for all grades, with a minimum of 5s.

The Archbishop proposed that C.I.E. should consider some modifications of the negotiating machinery, which would prove acceptable to C.I.E., the I.T.G.W.U. and the other three unions. All parties agreed to examine the modi-

fication, and the strikers decided to return to work, C.I.E. having stated that, for the purpose of receiving wages, the men would be deemed to be employed from the time of their reporting back for duty.

G.N.R.(I.) 1950 Results

The board of the G.N.R.(I.) states that the results for 1950 do not allow of the payment of any dividends on the guaranteed, preference or ordinary Stocks. The result of working for the year was a loss of £127,976, a surplus of £123,096 in the Republic of Ireland being offset by a loss of £251,072 in Northern Ireland.

A statement relating to the Governments' offer for acquisition of the company has been received from the Stockholders' Protection Association. The statement is being printed for circulation to all debenture and stock holders, with a form on which they may record their attitude to the offer. The replies

received will have been tabulated in time to report the results to the annual general meeting of the company, which will be held in Dublin on February 23, 1951.

Railcars for C.I.E.

The first two units of the twenty railcars for C.I.E. are expected to go into traffic in June. They are similar to those delivered last year to the G.N.R.(I.). A.C.V. Sales Limited is supplying the power units and mechanical parts, and Park Royal Vehicles Limited is supplying and mounting the bodies. The accommodation of each railcar will be twelve first class and thirty-two third class.

Four railcars for the narrow-gauge West Clare section are to be delivered in April. The power bogies are being supplied by Walker Bros. (Wigan) Ltd., and the bodies and trailing bogies are being built at the C.I.E. workshops at Inchicore.

Publications Received

"British Transport Review." Vol. I, No. 3, December, 1950. Published by the British Transport Commission. Price 1s.—The authoritative though not official articles in this issue include contributions by Mr. Stanley Adams, Chairman of Thos. Cook & Son, on the travel industry; by Mr. A. C. B. Pickford, Executive Officer (Terminals), Railway Executive, on mechanical freight handling, and by Mr. O. H. Corble, Chief Officer (Marine), Railway Executive, on British Railways shipping services. The reviews cover recent books on economics and industrial relations.

Travel in Iraq.—Illustrated folders issued by the Iraqi State Railways, Baghdad, describe the present-day and archaeological attractions of Iraq, with some suggested itineraries for the cold-weather season from November to March. Travel facilities include air lines and long-distance buses, besides the "Taurus Express" running between Baghdad and the Bosphorus, where connection is made with the "Simplon-Orient Express," and modern rolling stock, including special tourist saloons.

British Railways Shipping Service & Register of Ships.—Issued by the Railway Executive, 222, Marylebone Road, London, N.W.1. 8½ × 5½ in. 50 pp. October, 1950. No price stated.—This compendium gives details of passenger and cargo services operated by British Railways, including North and Irish Sea, Channel, Clyde, and ferry services in England and Scotland. The register gives the usual particulars, with information on vessels now building. Only those services (with the vessels operating on them) are shown for which British Railways are responsible. Thus, for the Newhaven-Dieppe route (operated jointly with the French National Railways) all vessels are given; but no mention is made of the Harwich-Hook day, Fishguard-Cork,

or other marine services forming part of British Railways Continental or Irish services, but not operated by British Railways ships.

Civil Engineering Equipment.—A new series of illustrated catalogues has been issued by Blaw Knox Limited, Clifton House, Euston Road, London, N.W.1, dealing with Wellpoint de-watering equipment for foundation work in water-bearing sub-soils; excavators; and diesel propelled Caterpillar and Challenger tractors. The capacities of the different equipments are given.

Seventy-Five Years Successful Endeavour.—To commemorate its seventy-fifth anniversary Earle Bourne & Co., Ltd., has published a booklet dealing with the range of the firm's products. In addition to being illustrated, the booklet contains a number of useful conversion tables, composition of copper alloys, the melting point and specific gravity of various metals and the formulae for calculating weights of brass and copper tubes. A copy of the booklet may be obtained from Earle Bourne & Co., Ltd., Heath Street South, Birmingham, 18.

Winter Sunshine.—The winter holidays programme of Thos. Cook & Son Ltd. embraces every continent. Nearest home these are the East and South Coast resorts, inland spas, the West (including the Scillies) and the Channel Islands. In Europe, apart from the better known winter resorts in the South of France and Italy, there are the sheltered shores of the Lake of Geneva, the coasts of Portugal, Spain and Gibraltar. Further afield winter holidays can be taken in Madeira and Teneriffe, North Africa, Malta, Egypt and Cyprus. But modern means of travel has enlarged the purview of the holidaymaker, who has a further choice of Bermuda and the West Indies, East and South Africa, India and Ceylon, and

even summer in Australia. Many of these resorts can be reached from Britain and in a few days by air, as well as by luxury liner, and many are in the sterling area, which solves the problem of the foreign currency allowance. Winter sports are the subject of a separate programme.

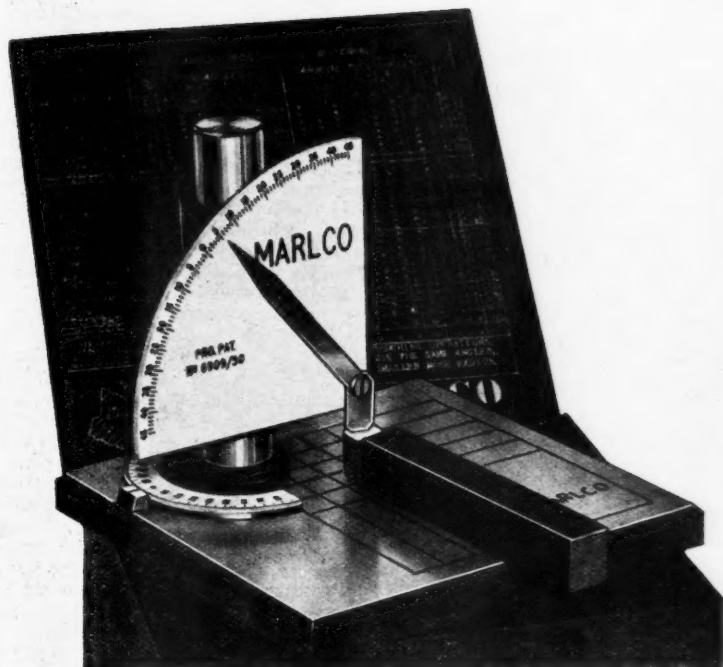
Industrial Battery Charges.—A booklet describing various types of battery charging equipment has been published by the General Electric Co. Ltd., Kingsway, London, W.C.2, which includes specifications relating to single, twin, and three-circuit chargers, in addition to lists of prices and shipping particulars for both standard and tropical units.

British Aluminium Applied.—The British Aluminium Co. Ltd., Salisbury House, London Wall, E.C.2, has issued a brochure dealing with aluminium and its application to industry. Industrial uses as applied to civil and marine engineering and road and rail transport are illustrated and there is a list of publications designed to assist users of aluminium and aluminium alloys. Data sheets show the mechanical and physical properties of aluminium and alloys in various forms.

Monel Metal Locomotive Firebox Stays.—A publication, well illustrated by diagrams, which covers in considerable detail the factors influencing the performance of firebox stays, has been issued by Henry Wiggin & Co., Ltd., Birmingham. The book, which will be of interest to those engaged in locomotive engineering, deals with the methods of machining, fitting, and welding of Monel metal staybolts; and its resistance to corrosion-fatigue and corrosion by water. Also included is a list of manufacturers of welding electrodes, staybolt calculations, specifications for firebox plates, physical and mechanical properties of Monel, together with specifications.

Measuring Cutting Tool Angles

*Protractor which measures
the angle of finished tools*



CORRECT tool shape is recognised as one of the essentials to obtaining maximum production, and with a view to accurately measuring the angles on cutting tools, a measuring instrument known as the Marico Tool Protractor has been developed by W. H. Marley & Co. Ltd., New Southgate Works, 105, High Road, London, N.11. The protractor, which is claimed to be accurate and simple in operation, is also useful for measuring the individual components of any compound angle.

The instrument is manufactured to precision standards; the bearing end of the pointer is hardened and tempered to ensure long life. An indent plunger locates the upper bracket (carrying the main scale) in the zero position, and it is in this position that the majority of angles are measured. While the protractor has been designed initially for the measurement of cutting tool angles, it can be used at the same time for determining any angle relative to a given reference plane.

Method of Operation

The side rake angle is measured in a plane at right angles to the shank of the tool, and is determined by placing the tool on the base of the protractor in such a position that the horizontal edge of the indicator registers on the top cutting face when the scale is lowered. The tool shank is "lined up" visually to the parallel lines

running from front to back on the base plate. The angle is then read directly from the scale (negative rake will be indicated when the angle is read on the lower side of the scale from the zero position). The back rake angle is determined in the same manner with the tool set parallel to the lines running from side to side.

Relief and clearance angles are measured by lowering the scale to such a position that the face in question registers on the vertical edge of the indicator. These angles should be measured in planes at right angles to the respective cutting edges; clearance angles are not necessary on H.S.S. tools, although re-grinding of relief angles is simplified if they are included.

The approach angle, if it should be less than 45 deg., is measured by placing the tool on its side parallel to the lines running from side to side, and following the procedure set out for measuring the back rake angle. When the approach angle is greater than 45 deg. the vertical edge of the indicator is used. The trail angle is measured by placing the tool on the opposite face and in the same relative position, i.e., parallel to the lines running side by side. When less than 45 deg. the angle will be measured by using the vertical edge of the pointer.

When it is desired to grind tools to a given maximum rake angle irrespective of the side and back rake angles, the

vertical scale can be rotated and the position of the tool moved accordingly until the indicator registers zero. The tool should then be lying parallel to either set of the parallel lines. By rotating the tool through 90 deg., i.e., to lie parallel with other lines, and lowering the column to register on the top face, the maximum rake angle will be indicated on the vertical scale and its relative position to the tool axis shown on the horizontal scale.

Supplied with each protractor is a table of suggested tool angles for machining practically every known material with either high-speed steel or carbide-tipped tools. The size of the protractor table is $6\frac{1}{2}$ in. \times $6\frac{1}{2}$ in., the height is $5\frac{1}{4}$ in., and the tool capacity from 0 in. to 2 in.

STREET LIGHTING ECONOMIES.—The Minister of Transport has appealed to street lighting authorities to assist in the campaign to save fuel by securing the greatest possible economies that can be achieved without undue risk. It is suggested that the best plan in most areas would be to switch off all lighting during a period when the lack of it would lead to least danger to road users and least difficulty to the police in carrying out their duties. As a rule it would be appropriate to switch off all lighting at 11 p.m., except in streets where lighting is required for essential work. In a letter to lighting authorities it is pointed out that no cut in lighting should be made during the period when the danger of road accidents is greatest, namely, during the early hours of the evening and particularly at dusk. During periods when traffic routes are lighted the lighting of streets should be maintained at full standard, without any switching out of alternate lamps, reduction of the power of lamps, or other similar measures.

INTERNATIONAL TRAIN CRUISES.—As the result of preliminary examination of the question by the International Union of Railways and of agreements between the administrations concerned, the first of a series of international train cruises is to be inaugurated this summer. The trains specially made up will include all three classes and the usual amenities, including restaurant cars in most cases. In general each train will call at centres in two or more countries and return to its station of origin. Passengers will sleep in hotels at principal points of call. Excursions and visits will be arranged to places of interest, and guides or hostesses will accompany the trains. The inclusive charge for these trains will cover railway fare (with up to 50 per cent. reduction in normal fare in some instances), meals, hotel accommodation, excursions, and so on. In most cases the railways themselves will organise the train cruises. The countries so far included in international train-cruise arrangements are: Austria, Belgium, Great Britain, France, Italy, Luxembourg, the Netherlands, Spain, Switzerland, and Western Germany.

Laminated Spring Production

Plant installed by the English Steel Corporation since the war for the mechanical production of railway springs

TOWARDS the end of the war it became apparent that the increasing demands for railway laminated springs for wagon and other rolling stock programmes could not be satisfied. This was due very largely to the limited number of skilled hand fitters.

Experiments showed that to increase output to levels sufficient to satisfy the requirements then envisaged, it would be necessary to produce springs by some mechanical process, and that it was better to use oil-hardening quality steel, minimising thereby hand manipulation. For

in a spring made up originally of oil-hardened steel, they can without detriment be replaced with plates of water-hardened steel, because the temperatures used for any future correction would for practical purposes be identical. The high skin stresses used in spring design require the best possible surface finish obtainable to give satisfactory service and this condition is satisfied by oil-hardened springs.

To bring out the best properties in the steel in spring making it is essential that temperatures and heating times should

leaves 3 in., and (d) maximum weight, 3 cwt. The minimum quantity is controlled by the cost of tooling, since tool costs must be high, and, generally, it is considered that 250 springs is the smallest quantity that can be undertaken economically.

Before laying out the plant, certain fundamental details had to be settled, and, because each spring is composed of a number of individual pieces of forgings in the form of spring leaves, handling problems could be really troublesome, costing a great deal in labour if not taken care of properly. The problem of assembling leaves was solved by elevators and the development of pack bending.

Steel bars 16-18 ft. in length are drawn from the warehouse and sheared to the required length on a heavy-duty machine. The leaves, as sheared, are loaded on to a continuous end-heating concentrated combustion furnace where approximately 6 in. of the plate is heated to a temperature of about 800° C. before being discharged for the first end-forming operations.

Having completed the operations on one end, the operator places the leaf on a second concentrated combustion furnace to heat the second end, the conveyor for the second furnace being placed conveniently near the operator. This furnace discharges the leaves to a similar end-forming machine.

Assembling the Leaves

The leaves have to be assembled into a "pack" to form a complete spring before the bending operation can be carried out. To enable this to be effected cheaply and effectively a new form of storage elevator was designed which also made it possible to discharge into the re-heating furnace without further manhandling.

This storage elevator, built by the Moxey Conveyor & Transporter Co. Ltd., Birmingham, actually represents three conveyors with a series of vertical rising and falling chains each with an independent drive and holding 420 springs each. The chains have carriers fixed at intervals of 18 in.

The leaves are cut off and prepared in batches of each type according to length, the longest being cut off first, and after the punching operation a leaf is loaded on to each carrier. When the second leaf comes along, one of each is loaded on to the carrier on top of the first leaf, and so the process progresses until each carrier has a complement of leaves forming one spring. The springs are then ready for bending.

The process of transferring the spring "packs" from the elevator to the re-heating furnace is done by a system of interlocks, controlled by a master timing clock. According to the spring weight or other controlling factors, the rate of

(Continued on page 133)



Heated spring delivered from hardening furnace shown in bending press

this reason the English Steel Corporation Limited evolved a procedure to deal with oil-hardened springs.

It must be appreciated that long slender objects such as spring leaves cannot be hardened in water without distortion. The chief advantage of oil hardening is that the distortion, if any, becomes so much reduced that jig forming and quenching becomes possible.

When the use of oil-hardened springs is being considered, doubt is sometimes expressed as to the difficulties which may be met in servicing by the mixing of plates of oil and water-hardened steels. It is claimed, however, that no spring which has been in service should be re-hardened, and that any correction necessary should be at a temperature not exceeding the tempering heat for the steel.

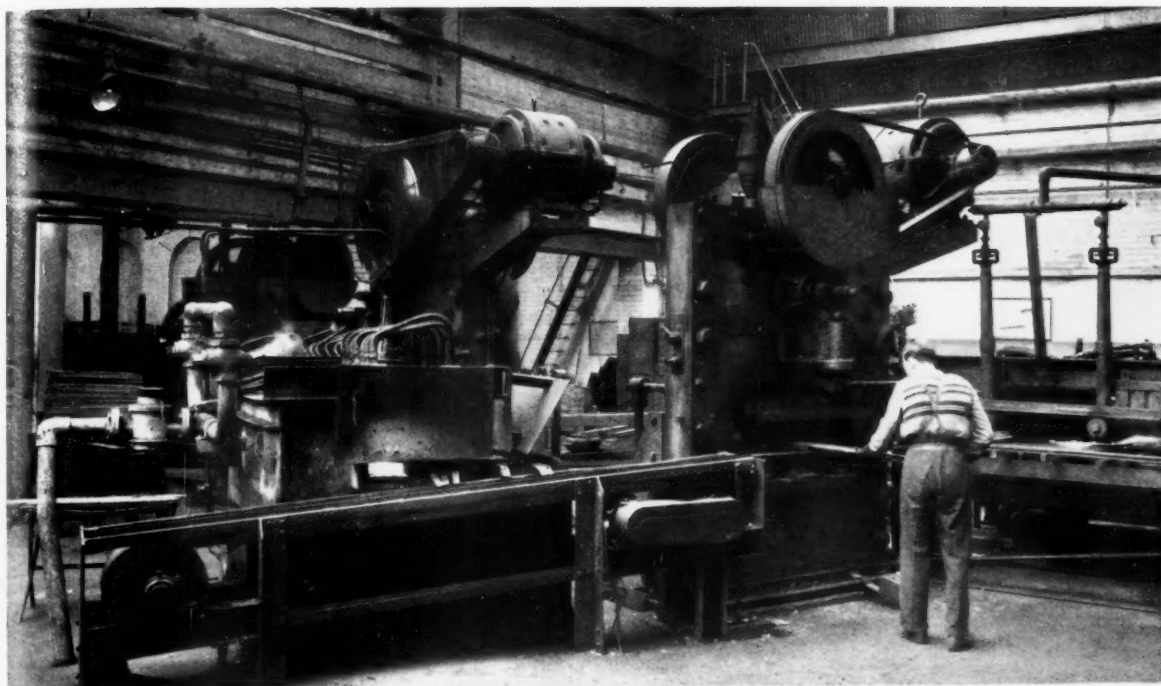
It will be accepted, therefore, that, where plates have to be replaced

be closely controlled. Mechanical production, with its steady flow of work, makes this readily obtainable. Furthermore, oil hardening necessitates the use of steel of such composition that the hardness can be obtained by a less drastic quench, and it follows that such a steel which is capable of being hardened with a slower rate of cooling is less sensitive to retardation of the cooling rate by such factors as the presence of small amounts of scale during quenching.

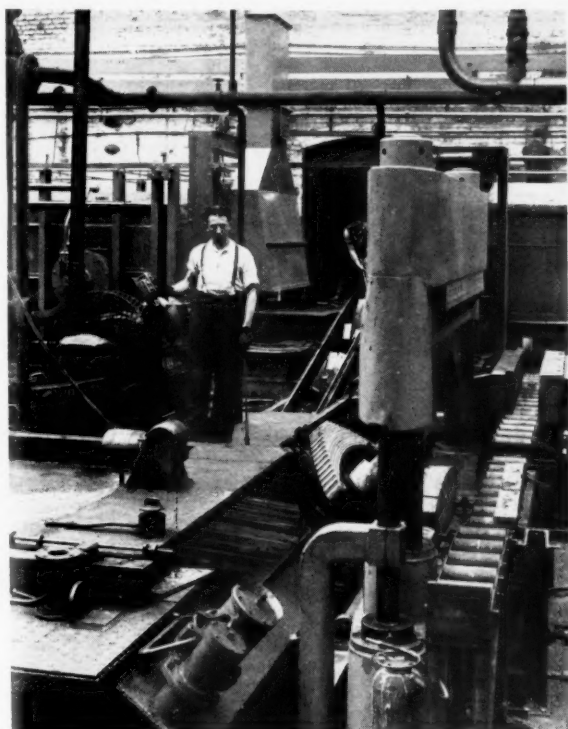
Mill scale, which is unavoidable in a black rolled bar, is broken up and falls away during the bending operation, and the quick transfer into the quenching oil made possible by mechanical handling reduces the formation of new scale to a minimum.

The plant is designed to manufacture springs falling within the limits of (a) maximum length, 5 ft.; (b) maximum width leaves 5 in.; (c) minimum width

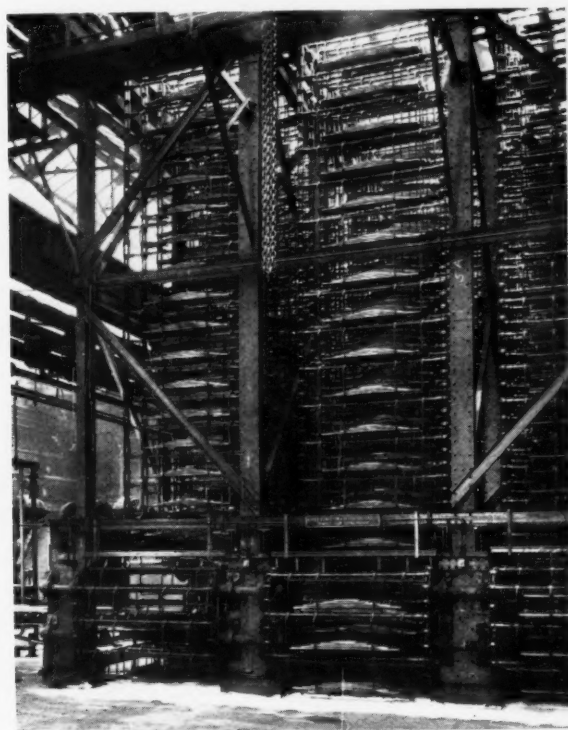
Laminated Spring Production



End forming machine and concentrated combustion furnace for the production of laminated springs

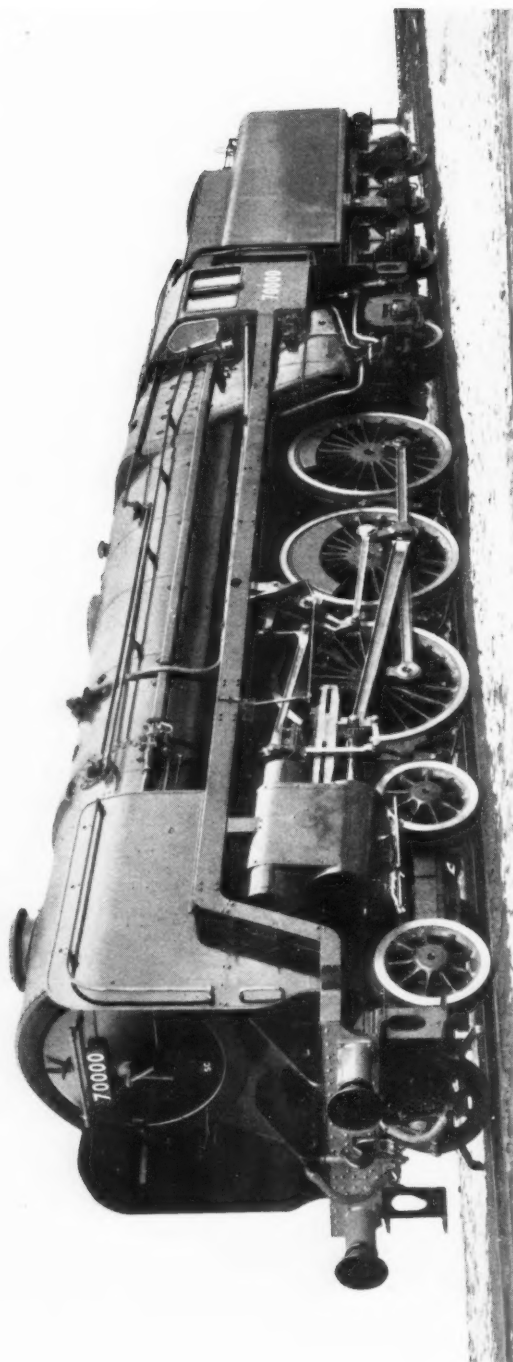


Discharging spring from press on to a platform ready for the oil-quenching process

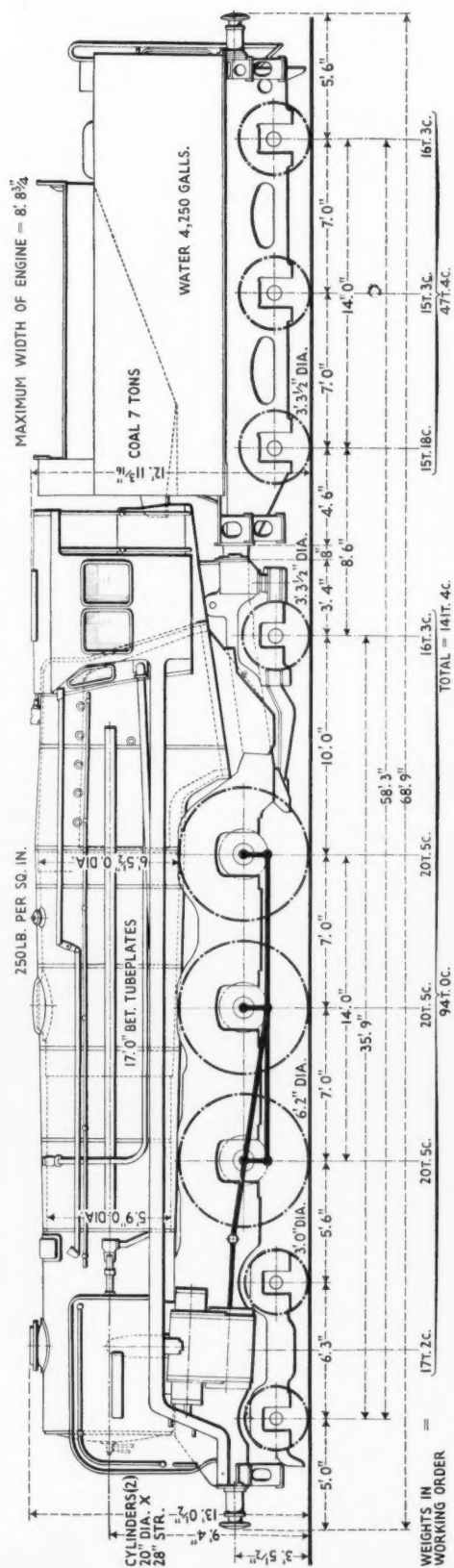


Storage elevator from which railway springs are fed to the hardening furnace

British Railways Standard Locomotives



British Railways standard locomotive designed for operating main-line passenger and fast freight services



British Railways Standard Locomotives

*Designed for both main-line
passenger and freight services*

THE first of 159 standard locomotives to be built by British Railways in 1951 has just been completed at Crewe Works. It is a Class "7," 4-6-2 mixed traffic locomotive, No. 70000, and is named *Britannia*. Like the other British Railways standard types, which will appear during this year, it has been designed and built under the direction of Mr. R. A. Riddles, Member for Mechanical & Electrical Engineering, Railway Executive.

Although Derby is the parent office for the design of this particular type, important sections were designed at Brighton, Doncaster, and Swindon as part of the policy of using the resources of all the Regional mechanical drawing offices to cover the standard types as a whole. Having two 20 in. \times 28 in. cylinders, 6 ft. 2 in. dia. coupled wheels, 250 lb. per sq. in. boiler pressure, and a starting tractive effort of 32,160 lb. No. 70000 is intended for main-line passenger and fast freight services of the kind now undertaken by Western Region "Castle," London Midland Region rebuilt "Royal Scot," Eastern and North Eastern Region "V2" Class, and Southern Region "West Country" locomotives, having equal or better route availability.

The combination of two cylinders with a wide firebox, unusual in British

practice since Ivatt's Atlantic of 1903, exhibits a definite policy to link extreme mechanical simplicity with the largest possible steam producing capacity, whilst roller bearings on all wheels are a contribution to high availability. The first 15 of the 25 engines of this type to be built at Crewe, Nos. 70000-70014, will be allocated to the Eastern Region for service in East Anglia. The last ten, Nos. 70015-70024, will go to the Western Region.

Boiler Design

The boiler is the normal design with riveted joints throughout, working at 250 lb. per sq. in. The shell is of high-tensile carbon manganese-steel throughout, and the barrel consists of two rings, the second being tapered and forming a true cone. The two rings are rolled from $\frac{1}{2}$ in. thick and $\frac{3}{2}$ in. thick plate respectively, the outside dia. being 5 ft. 9 in. at the front, and 6 ft. 5 $\frac{1}{2}$ in. at the firebox end.

The smokebox tubeplate is of the drumhead type, $\frac{1}{2}$ in. thick, and there are 40 large flue tubes 5 $\frac{1}{2}$ in. dia. outside, 7 s.w.g. thick, and 136 small tubes 2 $\frac{1}{2}$ in. dia. outside and 11 s.w.g. thick. The length between tubeplates is 17 ft. The steam dome contains a Melesco centrifugal drier. This fitting separates the water from the steam

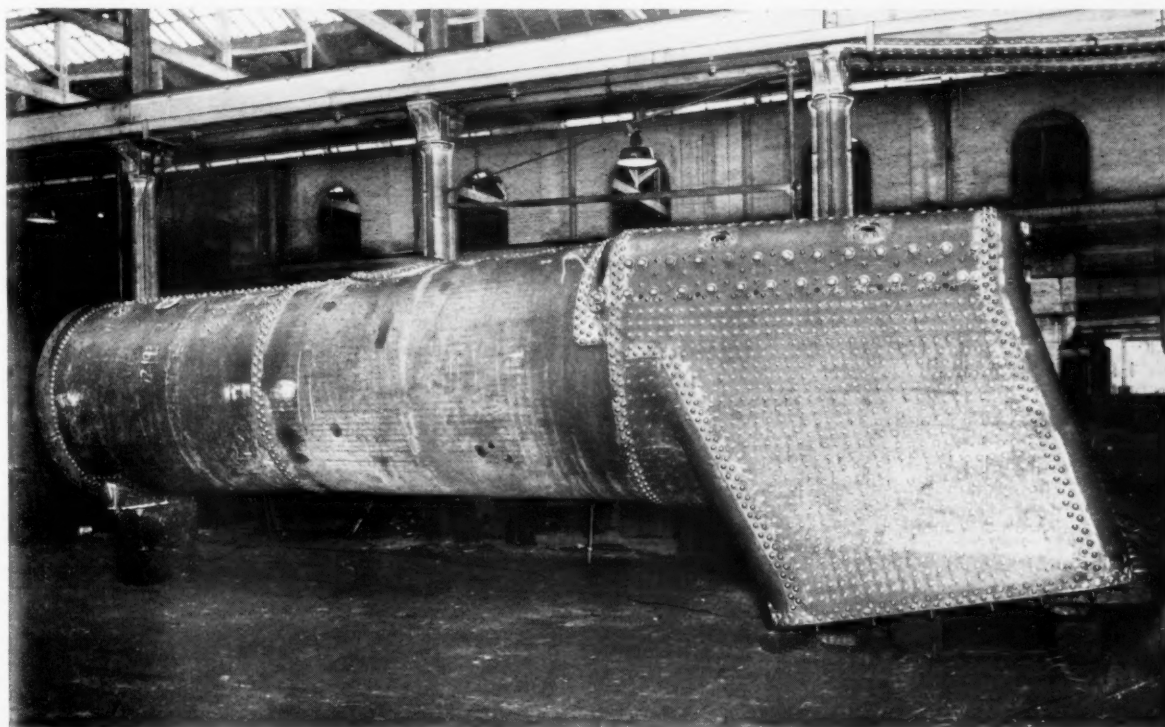
before entering the steam pipe, thus increasing its dryness before passing to the superheater.

The regulator is of the Superheater multi-valve type and is incorporated in the superheater header fitted in the smokebox. Access to the regulator valves is by a detachable cover in the top of the smokebox.

The boiler is fed with water through two separate clack valves placed at approximately 30 deg. on each side of the vertical centre line of the front barrel. The clack valves deliver on to two inclined trays, which deflect the incoming water round the inside of the barrel clear of the tubes.

A steam manifold is fitted on the top of the firebox in front of the cab, and is provided with separate shut off cocks to each steam supply pipe as well as a main shut off valve, this being operated from inside the cab. Two direct-loaded safety valves are mounted on the hind barrel immediately behind the dome.

A Belpaire firebox with wide grate is fitted. The steel wrapper plate is $\frac{1}{2}$ in. thick and the inner firebox is of copper and has a $\frac{3}{8}$ in. thick wrapper plate. The front of the firebox is extended into the boiler barrel to form a combustion chamber having a 1 in. thick tubeplate. All firebox waterspace stays



Boiler completed before the fitting of boiler mountings

are of Monel metal fitted with steel nuts inside the firebox. The roof longitudinal and transverse stays are of steel and the former are riveted over outside the steel wrapper.

The firebox is 7 ft. long outside, the width tapering from 7 ft. 9 in. at the front to 7 ft. 4 in. at the back, giving a grate area of 42 sq. ft. The boiler and firebox are lagged with a lightweight Fibreglass mattress.

A rocking grate is provided, consisting of 12 rocking sections, six each side of the centre line. Each rocking section carries 14 renewable firebar units, making a total of 168 units for the whole grate. The two sides of the grate can be rocked separately from the footplate, the operating gear being so arranged that two different travels can be employed, *i.e.*, full travel for dropping the fire when the engine is over an ashpit, and a shorter travel for agitating the fire to eliminate ash and

stuffing box on the left-hand side allows the regulator shaft to pass through the smokebox plate.

The leading dimensions of the locomotive are as follow:—

Cylinders, dia. and stroke	... 20 in. × 28 in. stroke
Wheels, coupled dia.	... 6 ft. 2 in.
.. front truck, dia.	... 3 ft. 0 in.
.. trailing wheel dia.	... 3 ft. 3½ in.
.. tender wheel dia.	... 3 ft. 3½ in.
Wheelbase, coupled	... 14 ft. 0 in.
.. engine	... 35 ft. 9 in.
.. engine and tender	... 58 ft. 3 in.
Heating surface	
Tubes	... 2,264 sq. ft.
Firebox	... 210 "
Total evaporative	... 2,474 "
Superheater	... 718 "
Total	... 3,192 "
Grate area	... 42 "
Boiler pressure	... 250 lb. per sq. in.
Weight of engine in working order	... 94 tons 0 cwt.
Weight of tender in working order	... 47 tons 4 cwt.
Total	... 141 tons 4 cwt.
Tractive effort	... 32,150 lb.

The main frames are of 1½ in. thick plates spaced 3 ft. 2½ in. apart, the centre lines coinciding with the centre

of the laminated type with plates of carbon steel, which are secured in the spring buckles by a vertical centre rivet. Underhung spring brackets with rubber damping pads and hangers in tension are provided for the coupled axle springs, which have a span of 4 ft. when loaded. The hangers are solid with cotters at top and bottom ends. Adjustment is obtained by fitting cotters of suitable depths.

Cylinders and Valve Gear

The two outside cylinders are 20 in. dia. × 28 in. stroke, and are steel castings with cast-iron liners, both in the barrel and valve chest. The 11 in. dia. valves have a steam lap of 1½ in. and lead of ¼ in. and are operated by valve gear of the conventional Walschaerts type, giving a travel in full gear of 7½ in. and full gear cut-off of 78 per cent. The slidebars are of the three-bar type with underhung crosshead.

Lubrication of motion pins is by grease nipple and gun; those for the reversing shaft and expansion link are grouped together on the motion bracket. The eccentric rod big end runs on a Skefco self-aligning ball bearing. The piston head incorporates a bronze spring-loaded slipper which carries the head clear of the cylinder barrel liner.

Valve and cylinder lubrication is by atomised oil delivered by mechanical lubricators. Steam-operated cylinder cocks of large dia. are fitted for quick draining of the cylinders of water which may accumulate. Reversing is by hand-wheel and screw; the latter is situated at the reversing shaft lever and rotated by a tubular shaft from the cab. A drum type cut-off indicator is provided and the operating wheel is placed parallel to the longitudinal centre line of the engine.

The coupled wheels are 6 ft. 2 in. dia. on tread, and the tyres are shrunk on and secured by two small lips, one each side of the wheel centre, there being no separate securing ring, studs, or rivets. Built-up weights in the wheels balance the revolving and 40 per cent. of the reciprocating weight.

Bogie and Pony Truck

The bogie has four wheels of 3 ft. dia. on tread and is carried on British Timken roller bearing axleboxes of the non-split cannon type. The engine weight is carried by side bolsters and laminated springs fitted in compensating beams. Side-play control of the bogie is by means of double coil springs.

The pony truck wheels are 3 ft. 3½ in. dia. on tread and are fitted with British Timken roller bearings running in outside axleboxes. The engine weight is taken at three points on the pony truck frame, one at pivot centre of the pony truck, and the other two being bolsters sliding on pads on the truck frame and situated behind the centre line of the pony truck axle. Pony truck side-play is controlled by coil springs.

The cab structure is carried by cantilever supports attached to the firebox
(Continued on page 134)



Completed frame for the trailing truck

break up clinker while the engine is out on the road.

The ashpan has three hoppers, one between and one each side of the main frames, and is of the self-emptying type, having bottom flap doors on the hoppers, connected by a shaft with universal joints and operated by a lever at ground level. Front damper doors on each hopper are opened and closed by screw gear worked from a hand-wheel on the fireman's side of the cab. This allows a fine adjustment to the air opening to be obtained. Two small doors are provided at the back for cleaning purposes.

Smokebox

The smokebox is of the cylindrical type resting on a fabricated saddle. The blast pipe has a plain circular cap of 5½ in. nozzle dia. which incorporates the blower ring. The smokebox is of the self-cleaning type with plates and a wire mesh grid so arranged as to prevent accumulation of ash in the smokebox when the engine is working.

On the right-hand side is mounted a Tri-Tone chime whistle, operated from cab by flexible cable passing down the right-hand handrail on the boiler. A

of the axlebox guide faces. The axlebox guides are welded integrally with frame plates and are fitted with manganese liners. The frames are well braced by vertical and horizontal stretchers and by pin jointed cross stays attached to the horn plates.

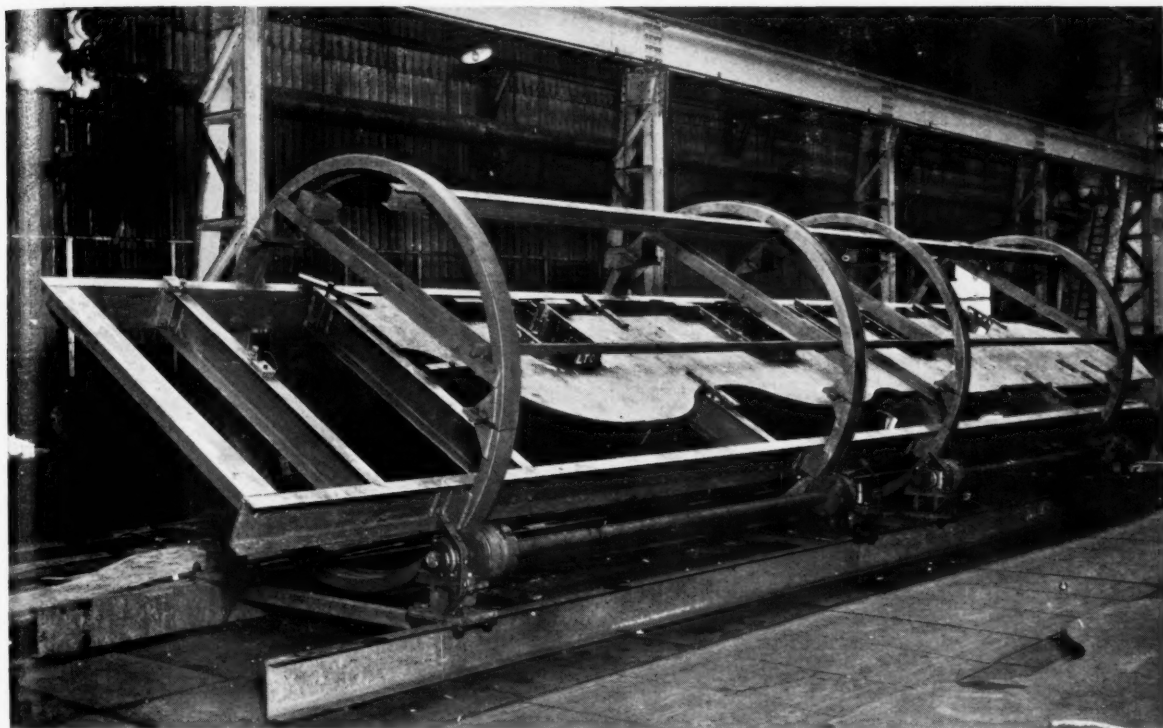
The rear end frame extension consists of two 2 in. thick slabs riveted to the main plates behind the trailing coupled wheels and carrying a fabricated dragbox at the hind end. A single drawbar transmits the tractive effort to the tender through rubber springs.

Two of the vertical stretchers support the front of the boiler barrel and the firebox front on adjusted brass wearing liners, while the back of the firebox is carried on brackets on the rear extension frames. The side footplating is carried by brackets fixed to the boiler.

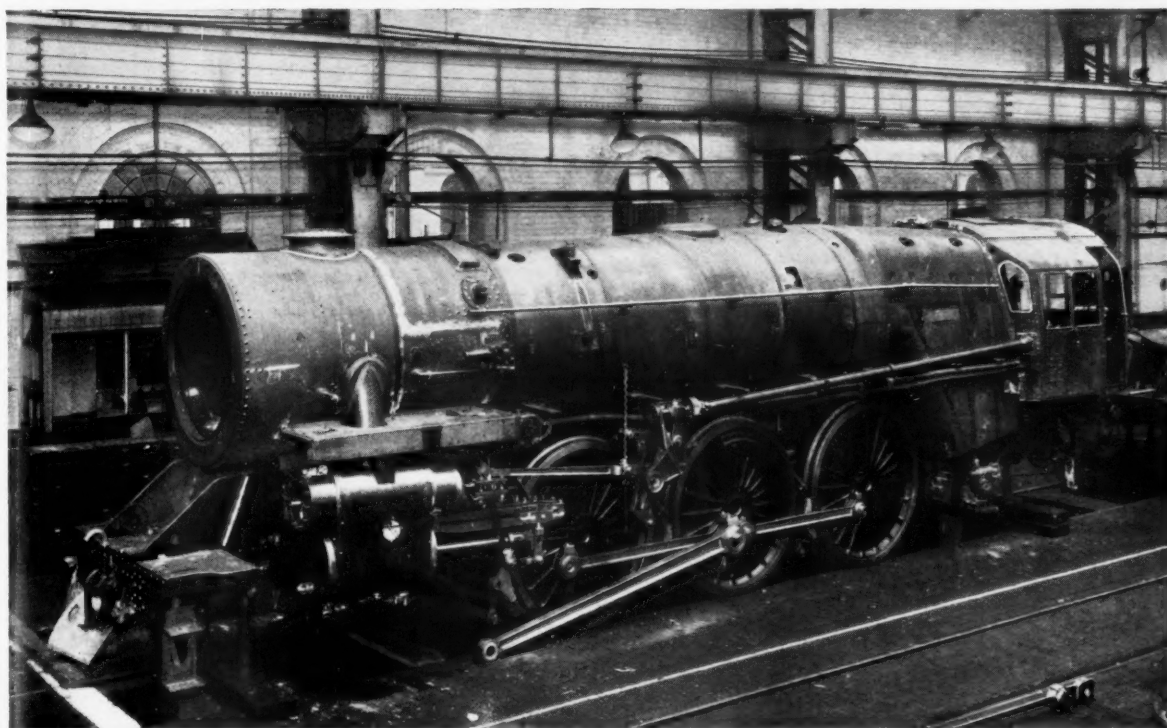
The engine and tender are carried on British Timken self-aligning roller bearing axleboxes throughout; those for the bogie and coupled axles are of the non-split cannon type. The faces of the axleboxes in contact with the horn guides are provided with manganese-steel liners welded to the body of the axlebox.

All springs for engine and tender are

British Railways Standard Locomotives



Manipulator for carrying the main frame plate during welding of axlebox guides



The engine under construction in the erecting shop at Crewe Works

Avalanches Disrupt Swiss Railways

(see article on page 136)



Snow plough in action, propelled by Rhaetian Railway Steam Locomotive



Attempted clearance of snow on Rhaetian Railway at Davos



Davos-Platz Station deep in snow

RAILWAY NEWS SECTION

PERSONAL

RAILWAY EXECUTIVE CHAIRMANSHIP

The Minister of Transport has announced that Mr. John Elliot has accepted his invitation, made after consultation with the British Transport Commission, to become Chairman of the Railway Executive, in succession to Sir Eustace Missenden, who relinquished the office on January 31. Mr. Elliot has been Chief Regional Officer, London Midland Region, British Railways, since 1949.

The Parliamentary Secretary to the Minister of Transport, the Rt. Hon. Lord Lucas of Chilworth, has appointed Mr. P. E. Lazarus to be his Private Secretary in succession to Mr. R. Wright, who has been transferred on promotion to another Ministry.

Major C. A. M. Alexander has been co-opted a Director of the Great Northern Railway Company (Ireland), in place of the late Sir George E. Clark, Bart.

BRITISH RAILWAYS APPOINTMENTS

The Railway Executive has announced the following appointments:—

Mr. G. Tunbridge, Estate Surveyor, North Eastern Region, to be Estate & Rating Surveyor, Southern Region.

Mr. S. Bollon, Publicity Assistant, Public Relations & Publicity Officer's Department, Eastern Region, to be Assistant Publicity Officer, Railway Executive Headquarters.

Mr. J. F. Cooper, General Superintendent, Alberta district, Canadian National Railways, has been appointed General Manager of the Northern Alberta Railways, in succession to Mr. J. M. MacArthur, who has retired.

The New South Wales Government Railways have announced the following appointments:—

Mr. W. A. Anderson, to be Secretary for Railways, in succession to Mr. S. R. Nicholas, retired.

Mr. A. J. McAndrew, to be Assistant Secretary for Railways.

Mr. F. P. Heard, to be Assistant Chief Mechanical Engineer.

Mr. S. C. J. Burke, to be Solicitor for Railways, in succession to Mr. P. J. Thorn, retired.

Mr. H. J. Jenkins, to be Assistant Solicitor for Railways.

At a recent meeting of the Irish Railway Clearing House Committee, Mr. J. B. Stephens was unanimously re-elected as Chairman of the Committee for the year 1951.

Mr. H. Young, who, as recorded in our January 19 issue, has retired from the position of Chief Mechanical Engineer, New South Wales Government Railways, began his railway career in 1900, when he joined the Great North of Scotland Railway. After gaining experience on other railways in Great Britain he entered the service of the New South Wales Department of Railways in 1912. In 1919 Mr. Young studied railway mechanical engineering practice in the United States and Canada and he became Chief Mechanical Engineer, N.S.W. Government Railways, in 1933. During the recent war he was appointed Area Controller of Aircraft Production and performed various duties for the Ministry of Munitions.

Mr. W. H. Armstrong, Assistant Chief Mechanical Engineer, New South Wales Government Railways, who, as recorded in our January 19 issue, has been appointed Chief Mechanical Engineer, began his service in the Department of Railways as an apprentice fitter and turner in 1908. He subsequently gained experience in all sections of the Mechanical Branch and was appointed to the position of Assistant Chief Mechanical Engineer in 1937. Mr. Armstrong is a Member of the Institution of Locomotive Engineers, and is an Asso-

ciate Member of the Institution of Engineers (Aust.) and an Associate Member of the Institute of Transport.

Mr. Douglas Lorimer and Mr. John Vaughan, President and Director respectively of the Locomotive Manufacturers' Association of Great Britain, sailed for India on February 1 on the *Strathnaver*. They will visit Chitternjan Locomotive Works and will also go to Delhi for discussions with the Member for Transport and Members of the Railway Board.



Mr. W. H. Armstrong

Appointed Chief Mechanical Engineer, New South Wales Government Railways

ciate Member of the Institution of Engineers (Aust.) and an Associate Member of the Institute of Transport.

We regret to record the death on January 26 of Mr. E. L. Hawkins, formerly Assistant Engineer (Maintenance), Southern Area, L.N.E.R. He became a pupil of the late Mr. John Wilson, Chief Engineer of the Great Eastern Railway, in 1892 and six years later was appointed Assistant to the District Engineer, Cambridge. In 1908 Mr. Hawkins became Chief Assistant to the District Engineer, Ipswich, and he was appointed as Acting District Engineer, Ipswich, in 1915; District Engineer, Stratford, in 1918; and Assistant to the Chief Engineer in 1919. At the time of the amalgamation he was appointed Assistant Engineer, Great

Iron & Steel Company, Cumberland, and Steel, Peech & Tozer, Rotherham. He is a former Chief Mechanical Engineer of the East Bengal and the North Western Railways, and during the war was Director of Mechanical Engineering, Indian Railway Board; more recently he has been with the Tata Locomotive & Engineering Company. Mr. C. F. Ryan has been appointed Chief of Development (Railway Materials) by the Steel, Peech & Tozer branch of the United Steel Companies Limited. He joined the company some time ago from the Buenos Ayres Western Railway, Argentina, where he was Locomotive Running Superintendent.

Mr. L. J. Hamblin, Assistant Divisional Superintendent, Paddington, Western Region, who, as recorded in our issue of January 19, has been appointed District Operating Superintendent, Worcester, entered the service of the Great Western Railway at Highbridge in 1924, and was transferred to the Divisional Superintendent's Office at Bristol three years later. Early in 1929 Mr. Hamblin began a course of special training, and in 1934 he went to the Office of the Superintendent of the Line at Paddington. He was appointed Junior Assistant in the



Mr. L. J. Hamblin

Appointed District Operating Superintendent, Worcester, Western Region



Mr. B. H. Johnson

Appointed Chief Engineer, Rhodesia Railways



Mr. Thomas F. Brazil

Commercial Superintendent, Coras Iompair Eireann, who has retired

Divisional Superintendent's Office at Birmingham in January, 1938, and in August of the same year became Chief Clerk to the Divisional Superintendent at Worcester. Three years later Mr. Hamblin was appointed Assistant Divisional Superintendent, Cardiff, and was appointed to a similar position at Paddington in 1942.

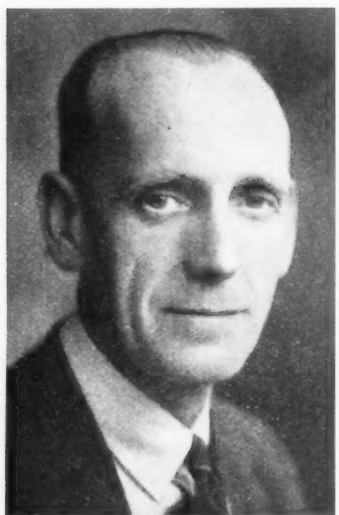
Mr. B. H. Johnson, M.A.(Cantab.), M.I.C.E., A.M.I.Mech.E., Assistant Chief Engineer, Rhodesia Railways, who has been appointed Chief Engineer, was born in 1902 and educated at Brighton College and Clare College, Cambridge. He joined Rhodesia Railways in 1923 as Pupil Engineer and Junior Assistant Engineer. In 1926 he took up an appointment in India, but rejoined the Rhodesia Railways in 1927 as Assistant Engineer and was engaged on general railway work, including one year as Senior Assistant Engineer on the reconstruction of the main line between Wankie

and the Victoria Falls. In 1936, on the introduction of 80 lb. rails, he was appointed Resident Engineer, Relaying, in charge of this programme, which involved the relaying of some 700 miles of the main line, between Salisbury and Batoka. During the recent war he served with the South African Engineer Corps, Railway Construction & Maintenance Group, in Egypt, Palestine and in the Western Desert, rising to the rank of Major, and became second in command of the Group; he was mentioned in despatches for services in the Western Desert. Mr. Johnson returned to Rhodesia Railways in 1943 and was appointed District Engineer, Bulawayo, in 1946, and Assistant Chief Engineer in 1948.

Mr. Thomas F. Brazil, Commercial Superintendent, Coras Iompair Eireann, who has retired, joined the Great Southern & Western Railway in 1902, and after

having served at various stations, became Accountant at North Wall Goods Department in 1918. He was appointed to the Claims Department of the Traffic Manager's Office in 1920. In 1922 he was transferred to the Rates Department, and took an important part in the revision of rates and general railway classification, consequent on the Railways Act of 1924. He was appointed Clerk-in-Charge of Irish Rates Section in 1926, and Chief Rates Clerk in 1932. Mr. Brazil was appointed Commercial Assistant in 1942 and on the formation of C.I.E. in 1945 he became Commercial Superintendent. He represented the G.S.R. and C.I.E. for many years on the Irish & English Traffic Conference, on the Irish Traffic Officers' Conference and on the Control Committee of the Associated British & Irish Railways.

Mr. James Gillespie, Assistant Accountant, Scottish Region, who, as



Mr. James Gillespie

Appointed Expenditure Assistant to Chief Financial Officer, Railway Executive



Mr. R. P. Davis

Appointed Goods Superintendent, Birmingham, London Midland and Western Regions



The late Mr. G. W. V. Shaw

Assistant to President, Canadian National Railways, 1943-51

recorded in our January 12 issue, has been appointed Expenditure Assistant to the Chief Financial Officer, Railway Executive headquarters, entered the service of the Caledonian Railway at St. Rollox Workshops in 1918. After gaining clerical experience in various departments he entered the Locomotive Accountant's Office, Glasgow, and in 1929 was appointed to take charge of the Accounts Sub-Section dealing with new works, expenditure and statistics. In 1942 he was transferred, on loan, to the Ministry of War Transport and appointed Investigating Officer in connection with the examination of the control (net) revenue account of the L.N.E.R. During the period 1945-6 he was closely identified with the programme of rolling stock renewals for all companies and acted on behalf of the Ministry as examiner of contracts placed with private builders. In September, 1946, he returned to the L.M.S.R. as Works Accountant, Glasgow, and took up the appointment of Assistant Accountant, British Railways, Scottish Region, in October, 1948.

Mr. R. P. Davis, District Goods Superintendent, Paddington, Western Region, who, as recorded in our January 12 issue, has been appointed Goods Superintendent, Birmingham, in charge of both London Midland and Western Region operations, joined the Great Western Railway at Plymouth in 1911. From 1915 to 1919 he was with the services, and after returning to the G.W.R. at Plymouth, he went to the Chief Goods Manager's Office, Paddington, in 1922. Following a four-year course of special training, he was transferred to the staff section of the Chief Goods Manager's Office, where he dealt with matters arising from the powers conferred on the railways to operate road services. Between 1930 and 1932 Mr. Davis was engaged on schemes for the extensive transits re-organisation, and in 1934 was appointed Outdoor Representative (Operating) to the Chief Goods Manager, also dealing with questions of inter-company procedure and the inter-railway co-ordination scheme. He became Assistant District Goods Manager, Swansea, in 1939; Goods Superintendent, Smithfield (London), in 1944; Assistant District Goods Manager, Paddington, in 1945; and District Goods Manager, Newport, in 1946. Mr. Davis returned to Paddington in 1949 as District Goods Superintendent.

We regret to record the death on January 22, at the age of 55, of Mr. G. W. V. Shaw, Assistant to the President, Canadian National Railways, who was born in Worcestershire, England, and entered the service of the former Grand Trunk Railway in 1916, in the General Passenger Department at Montreal. He acted as Secretary to the Passenger Traffic Manager, and in other capacities, until late in 1922, when, on the formation of the Canadian National Railways, he joined the staff of the Chairman & President; after experience as Assistant Chief Clerk in that office he was made Assistant Secretary to the President. In 1934 he was appointed Secretary to the Chairman of Trustees, and in 1936 became Chief Clerk to the Chairman & President. He was appointed Assistant Secretary of the company in 1938 and Assistant to the President in 1943. Mr. Shaw assisted the first Earl (then Mr.) Lloyd George in a secretarial capacity for the duration of his Canadian and United States tour of 1923.

Mr. Felix L. Levy has been elected Chairman & Managing Director of the

New London Electron Works Limited, one of the "600" group of companies, in succession to the late Mr. Lawrence Levy. Mr. W. Clarke, General Manager of the New London Electron Works Limited, has been elected to the board.

Mr. Stanley Hollands, a Deputy Director Home Sales, A.C.V. Sales Limited, has been elected an Executive Director of the company and appointed to be Director in charge of Technical Services.

Mr. E. A. Grace, of the General Manager's Office, Coras Iompair Eireann, is one of the Irish members of an international team of accountants which is visiting the United States to study cost accounting procedure in that country. The team sailed from Le Havre for New York on the *Liberte* on January 30, and will subsequently return to Paris to complete its report.

PRESENTATION TO MR. C. GRASEMANN
An illuminated testimonial and a cheque, the gifts of the Public Relations & Publicity Officers of British Railways and their Assistants, were recently presented to Mr. C. Grasmann on his retirement from the position of Public Relations & Publicity Officer, Southern Region. The presentation was made by Mr. A. J. Pearson, Chief Officer (Administration), Railway Executive, who presided over a meeting at the Railway Clearing House of Mr. Grasmann's former colleagues.

Messrs. J. B. Horrigan, Staff of the Chief Civil Engineer, C. Gates, Staff of the Superintendent of Motive Power, and H. White and A. E. Moyle, of the Motive Power Department, Western Australian Government Railways, who have been on a visit to Great Britain, left this country on January 31. Following their tour of British Railways they have been visiting railway manufacturing firms in connection with track supplies for Western Australia and have also visited Beyer, Peacock & Co. Ltd., concerning 60 steam locomotives under construction for that railway and Metropolitan-Vickers—Beyer Peacock Limited, which is supplying 60 diesel-electric locomotives.

We regret to record the death on January 24 of Mr. Kenneth R. Pearson, A.M.I.C.E., M.I.Loco.E., a partner in the firm of Kenneth R. Pearson & Son, Engineers Agents.

British Railways, North-Eastern Region, has announced that Mr. C. N. Montague, Assistant to Accountant (Revenue), Kings Cross, has been appointed Revenue Accountant (Merchandise), Eastern & North Eastern Regions, Newcastle.

The Road Haulage Executive has announced that Mr. H. T. Duffield, a part-time Member of the Executive, has succeeded Sir James Milne as Chairman of the Board of Management of the Special Traffics (Pickfords) Division, and the Board is now constituted as follows: Mr. Henry T. Duffield (Chairman), Mr. N. R. Bellwood, Mr. C. K. Bird, Mr. C. Bostock, Mr. Harold Elliott and Mr. S. E. Raymond.

Mr. T. M. Till has succeeded Major Curling as Chairman & Managing Director of the British Automatic Co. Ltd.

Mr. J. B. Thomas, Deputy Chairman & Managing Director of Hadfields Limited, has relinquished these appointments and has been succeeded by Mr. Harold Humphries, Deputy Managing Director of the company.

Laminated Spring Production

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output is decided and the control clock set. The furnace used for reheating purposes is of the walking beam type, the beams being operated by an oil hydraulic system, and the frequency of operations is controlled by the master clock, together with a small conveyor which transfers the spring "pack" from the elevator carrier to the feed rolls into the furnace.

As the spring enters the furnace it breaks the light ray operating a photo-electric cell which energises a clock set at a pre-determined timing. The timing is arranged to give the spring time to travel into the required position before cutting out the feed roller drive and so stopping the spring until the beams pick it up and convey it through the furnace.

The springs are discharged into a press which squeezes the leaves edge-wise before passing into the bending press. Here the leaves are formed into springs to the required curvature and they are then discharged automatically on to a platform. The leaves are then loaded individually into dies where they are gripped for quenching and each leaf is discharged automatically as the succeeding spring leaves are loaded. The bending temperatures employed are 920°C.-950°C. After quenching, the leaves are conveyed to the tempering furnace.

Hardening and tempering furnaces, with the control panel, were built by Stein & Atkinson Limited, 25, Wilton Road, London, S.W.1, using instruments supplied by George Kent Limited, Luton, and time clock by Burrell.

After tempering the leaves are dropped into a water tank to facilitate quick handling. As they are conveyed from the tank the spring leaves are put together into springs. They then undergo their first inspection for general close fitting in a press designed to grip the spring in centre and at the same time allow the spring to be turned over for close examination of both sides. After passing the first inspection, a bolt or strap is fitted to the centre and a deflection test carried out. Here the springs are deflected in a specially designed horizontal press.

The camber is then measured and if satisfactory the spring is loaded on to another storage elevator. The springs are now ready for hooping.

Inspection of New Plant

The new plant described above was envisaged after the war and has been in full production for about a year. Its capacity is 2 tons of laminated springs an hour, mostly railway springs, and it was designed in the English Steel Corporation drawing office.

On the occasion of a visit to the works by representatives of the technical press on January 25, the visitors were shown round by Dr. C. J. Dads-well, Director, English Steel Corporation, Mr. C. Muirhead, Special Director, and Mr. G. Bentley, Publicity Department.

Naming Ceremony for British Railways Standard Locomotive

First of new mixed-traffic class named "Britannia" by Minister of Transport

The naming ceremony for the first of British Railways new standard mixed-traffic class, No. 70000 *Britannia*, was performed at Marylebone Station on January 30 by Mr. Alfred Barnes, Minister of Transport; Sir Eustace Missenden, Chairman of the Railway Executive, presided, accompanied on the platform by Lord Hurcomb, Chairman of the British Transport Commission, and by Mr. R. A. Riddles, Member of the Railway Executive for Mechanical & Electric Engineering.

Before the ceremony, members of British Railways staff who had participated in the design and construction of the locomotive, including Messrs. R. C. Bond, Chief Officer (Locomotive Construction & Maintenance), and E. S. Cox, Executive Officer (Design), Railway Executive, and the engine crew of No. 70000 were presented to the Minister.

Introducing Mr. Barnes, Sir Eustace Missenden referred to his presence at previous railway inaugural functions, which, he said, showed that British Railways were pressing forward despite difficulties, and that the Minister took a very close interest in their problems. On this last occasion before his own retirement from the chairmanship of the Railway Executive of welcoming Mr. Barnes at a gathering of this kind, he wished to express the appreciation of British Railways staff for the encouragement so given them.

Sir Eustace Missenden also welcomed Lord Hurcomb and the Members of the British Transport Commission, and referred to the interest taken by Lord Hurcomb in the development of British Railways locomotive programme.

Reduced Coal and Maintenance Costs

Previous inaugurations, he continued, had been those of projects initiated by the former railway companies; now, however, they were concerned with a development planned and completed—and the tradi-

tional skill and craftsmanship of all the railways had contributed to it—for British Railways as a whole, to give maximum locomotive availability and minimum cost of coal and maintenance, over a greater range of railway routes than was ever previously possible with a single design. With powerful competition from other forms of traction, and coal both scarce and dear, any contribution to the increased economy and efficiency of British Railways 19,000 locomotives was of great importance. The preliminary trials had suggested every prospect of realising the economies and increased efficiency, and so of improving further upon the reduction in coal consumption which they were already obtaining.

Amongst preliminary steps taken in the production of the new locomotive Sir Eustace Missenden referred to the locomotive interchange trials, and to consultation with the trades unions and engineers regarding features such as the cab. The main credit for design and production must go to Mr. Riddles.

Co-operation of Civil Engineers

The co-operation, however, of other departments must be mentioned, including the civil engineers under the direction of Mr. J. C. L. Train, Member of the Railway Executive, in producing new standard track and formulating a revised British Railways loading gauge. He would like also to thank the Members of the Railway Executive and Chief Regional Officers and their staffs for their team-work during the past three years. He concluded by reference to *Britannia* as an honoured name borne by many distinguished forebears of the present locomotive.

Mr. Alfred Barnes, after referring to Sir Eustace Missenden's half-century of railway service, said that *Britannia* was physical evidence of creative work performed by

British Railways; the former companies, however, had contributed much through the skill inherited by those who were now members of British Railways staff. Savings in spare parts and stores, besides increasing railway efficiency, would indirectly do much for the economy of the nation. The new locomotive would be inspected by many railwaymen and others from overseas who would visit Britain in Festival year, and this would form part of the "sale" of British skill and enterprise.

He then unveiled the nameplate *Britannia* on the smoke deflector of No. 70000.

Others present at the naming ceremony included:—

Sir Gilmour Jenkins, Permanent Secretary to the Ministry of Transport; Mr. John Benstead, Deputy Chairman, and Sir William Wood and Lord Rusholme, Members, Mr. Miles Beevor, Chief Secretary, and Mr. J. H. Brebner, Chief Public Relations & Publicity Officer, British Transport Commission; Lt.-Colonel G. R. S. Wilson, Chief Inspecting Officer of Railways, Ministry of Transport.

Messrs. W. P. Allen, V. M. Barrington-Ward, David Blee and J. C. L. Train, and General Sir Daril Watson, Members, Railway Executive; Messrs. C. K. Bird, John Elliot, C. P. Hopkins and K. W. C. Grand, Chief Regional Officers respectively of the Eastern, London Midland, Southern, and Western Regions;

Messrs. J. L. Harrington and A. J. Pearson, Chief Officers (Administration), J. Ness, Chief Officer (New Works), G. Wynne Davies, Publicity Officer, D. S. M. Barrie, Public Relations Officer, V. Radford, Chief Financial Officer, S. E. Parkhouse, Chief Officer (Operating), A. Dean, Chief Officer Engineering (Works), H. H. Dyer, Chief Executive Officer Engineering (Signal & Telecommunications), S. B. Warder, Chief Electrical Engineer, G. S. Hussey, Executive Officer (Administrative & Special Duties), and Mr. R. F. Harvey, Chief Officer (Motive Power). Railway Executive; also representatives of the railway trades unions.

British Railways Standard Locomotives

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backplate, and by a diaphragm plate at the dragbox, this arrangement allowing full freedom for the cab to move with the boiler as expansion takes place. All boiler fittings and pipes are kept free from the main frames to avoid differential expansion and secure freedom from fracture due to this cause. For this reason, the exhaust injector on the right-hand side and the live steam injector on the left are carried on brackets attached to the ashpan and foundation ring.

The steam and water controls for both injectors are operated from the fireman's side of the engine. The cab floor plate is extended backwards to form a solid platform for the crew up to the front plate of the tender, and the normal hinged fall plate is dispensed with. No footplate on the tender is required.

All the driving controls are grouped to give easy access and operation, the vacuum brake, sanding, and blower valves being carried on a control

column at the driver's right hand. A leather upholstered seat and back is fitted on the driving side, and side wind-screens are provided outside the cab for the use of both driver and fireman.

Sanding is by steam, and is fitted to the front of all coupled wheels and the rear of the driving wheels.

Tender Design

The tender, which is carried on six wheels of 3 ft. 3½ in. dia., is arranged to give a good view to the rear when running tender first. The welded tank has a large radius at the corners to facilitate the welding of the plates. The coal bunker is of rectangular shape and is narrower than the tank.

Two external feed water sieve boxes are provided to collect dirt and foreign matter from water before passing to the injectors, the sieve portion being easily withdrawn for cleaning or renewal purposes. Water pick-up gear is provided. The wheels, axle, and axlebox assembly for the tender is similar to that for the pony truck of the engine.

Locker accommodation on the tender front includes a food cupboard with detachable stainless steel lining for easy

cleaning. The tender water and coal capacities are 4,250 gal. and 7 tons respectively. The engine and tender have steam brakes which can be worked independently or in conjunction with the vacuum brake by means of a separate driver's valve. Brake blocks of the single type supply the brake power to the six coupled wheels and all tender wheels.

The following is a list of the principal suppliers of equipment provided for the locomotives:—

Exhaust steam injector,	Davies & Metcalfe Limited
No. 11 Class K	
Vacuum brake ejector,	Gresham & Craven Limited
driver's brake valve,	
graduable steam brake	
valve, and associated	
brake details	
Roller bearing axleboxes...	British Timken Limited
Self-aligning ball bearings	Skefko Ball Bearing Co. Ltd.
for valve gear return	
cranks	
Buffers	Geo. Turton, Platts & Co. Ltd.
Fibreglass insulating mat-	W. Gilmour Smith & Co. Ltd.
tresses for boiler and	
firebox	
Manually-operated boiler	Everlasting Valve Co. Ltd.
blowdown valve	
Mechanical lubricators for	The Gulf Oil Co. (Great Britain) Ltd.
cylinder lubrication, atom-	
isers and check valves	
Superheater, regulator	The Superheater Co. Ltd.
valves and tangential	
steam drier	
Tri-Tone chime whistle	Crosby Valve & Engineering Co. Ltd.

Permanent Way Institution Annual Meeting and Dinner

*Lord Hurcomb on the work of unifying British Railways
and steps taken to prepare the way for future economies*

The sixty-seventh annual winter meeting of the Permanent Way Institution was held in the theatre at the Institution of Civil Engineers on Saturday last, when the President, Mr. J. C. L. Train, M.C., presided. Some 155 members from all parts of Great Britain were present, including the President-elect, Lt.-Colonel H. B. Everard, D.S.O., and past Presidents Messrs. J. Taylor Thompson, M.C., V. A. M. Robertson, C.B.E., M.C., and F. E. Harrison, O.B.E.

The Secretary and Treasurer submitted a report of the activities during the past year, in the course of which it was stated that Mr. J. C. L. Train, Member of the Railway Executive, had accepted the presidency for the second time and, by his continued assistance and advice, had helped the reputation of the Institution to stand high in railway engineering circles. Thanks were due to Mr. J. A. R. Turner of the London Section for the excellent arrangements made for the 1950 Annual Winter Dinner.

During the year over 200 meetings and visits had taken place by home sections. The section of India and Sudan had held several meetings, but the section in Malaya had been unable to recommence its gatherings. An application had been received from a group of members in Southern Rhodesia requesting the Council to recognise the formation of a section there. The number of members enrolled in 1950 had been 350. On January 13 last the President had unveiled a wall plaque in the room at the Granby Hotel, Nottingham, where, on January 5, 1884, it was agreed to form the Institution of Permanent Way Inspectors, the forerunner of the present Institution.

Election of President

Mr. J. Taylor Thompson then proposed the election as President for 1951 of Lt.-Colonel H. B. Everard, D.S.O., A.M.I.C.E., Chief Officer, Engineering, (Maintenance), the Railway Executive. Mr. Thompson said it was fitting that Colonel Everard should be elected as he was the Chief Officer at the Railway Executive dealing with permanent way matters, and was Chairman of the Railway Track Committee. The proposal was seconded by Mr. W. Paterson, and carried with applause. Colonel Everard, in thanking the members said he would do his best to follow in the steps of their eminent past presidents.

The following were elected as Vice-Presidents—for England, Mr. J. A. Carey; Scotland, Mr. W. Paterson; Wales, Lt.-Colonel R. W. Edwards, R.E.; Ireland, Mr. Neil C. Cain; India, Mr. A. Saldanha; Sudan, Mr. C. T. Serjeant; Malaya, Mr. J. L. F. Fenwick.

The officers were re-elected, namely, Secretary, Mr. H. Janes, Treasurer, Mr. F. Lawson, Editor, Mr. H. Ormiston, Auditors, Messrs. Hector Hall and L. T. Starks.

After members of Council and various Committees had been elected, the Secretary (Mr. H. Janes) gave a report regarding the 1951 summer meeting and convention to be held at The Hague from May 18 to 23. On January 9 Ir. F. Q. den Hollander, the President of the Netherlands Railways had received Mr. Everard and Mr. Janes at Utrecht and a detailed programme of inspections and visits, which had been prepared in conjunction with Ir. J. L. A. Cuperus, Chief of Way & Works, was con-

sidered and agreed. The annual summer dinner will take place at the Hotel Kurhaus, Scheveningen, and among places to be visited are Gouda, Zuider Zee works, Rotterdam, Ymuiden, Amsterdam, Eindhoven, Hengelo, Enschede, and Leiden.

At the suggestion of Mr. C. E. R. Sherrington, it was decided to forward an expression of thanks to Mr. den Hollander for the courteous and generous manner he was proposing to receive the Convention party.

At the conclusion of the business agenda, the retiring President, Mr. Train, gave an address entitled "A Review of the Railways under Nationalisation." He dealt with some of the achievements of the Railway Executive, more particularly those which concerned the civil engineering section, such as mechanisation, standard flat-bottom track, and so forth. Mr. Train also commented on staff problems and the different reactions to the change from railway groups to British Railways.

Mr. A. S. Quartermaine, M.C., proposed a vote of thanks to Mr. Train for his address.

Thanks were then expressed to Mr. Train for his active assistance and interest on behalf of the Institution during his year of office. In acknowledging, Mr. Train said that although he had retired from the Presidency he would continue to do all he could to help the Institution.

The Annual Dinner

The annual dinner was held at the Railway Executive Headquarters, 222, Marylebone Road, N.W.1. The newly-elected President, Lt.-Colonel H. B. Everard, D.S.O., T.D., was in the Chair. The principal guests were Lord Hurcomb, Chairman of the British Transport Commission, and Lord Latham, Chairman of the London Transport Executive. Among those present were:—

Messrs. W. J. Ash, R. W. Bailey, G. W. Baker, G. B. Barton, W. H. Best, E. E. Blick, H. T. Bowen, J. I. Campbell, A. H. Cantrell, T. A. Carson, C. J. Chaplin, B. W. C. Cooke, E. C. Cookson, E. R. Dashper, A. Dean, A. W. M. Dyke, Lt.-Colonel R. H. Edwards, Lt.-Colonel H. B. Everard, Messrs. H. Hall, F. E. Harrison, P. A. James, H. Janes, W. D. Johns, D. R. Lamb, F. Lloyd, J. C. Loach, A. C. Maher, K. C. Marrian, B. Mulliner, H. Ormiston, W. Paterson, J. C. Peace, A. S. Quartermaine, J. Ratter, R. C. Rattray, V. A. M. Robertson, W. Rothwell, J. Scott, D. D. Shaw, S. A. Strange, N. W. Swinnerton, L. Taylor, J. Taylor Thompson, J. C. L. Train, J. A. R. Turner, E. H. Tustain, F. Wensley, and Lt.-Colonel G. R. S. Wilson.

Lord Hurcomb, proposing the toast of the Permanent Way Institution, said the Institution was now 67 years old and was held in great esteem by technical men in this country and abroad. The good feeling and the sense of sharing in an essential task which distinguished the Institution, as well as the steps which were taken to widen the interests of members and to extend their knowledge, provided support and ballast to the British railway system in much more than the physical meaning of those terms.

In spite of all adverse criticisms and the laments for times past the nationalised transport system was moving steadily forward in the tremendous task which Parliament has given the Commission to carry out. The reports which the Commission received regularly from the Executive en-

abled it to see how the permanent way men of British Railways were improving its services and, in spite of difficulties, he was sure that they would not let them slip back.

He always looked with special interest at the monthly report of progress with the renewal programme which the Commission received from the Railway Executive. About 7.4 per cent. of the year 1951 had passed and he should expect Mr. Train to tell him that 7.5 per cent. of the re-laying programme had been completed, as permanent way men were always a bit ahead of the calendar. But that might be too much to expect just now when snow and flood had invaded at so many points.

Many people had been asking what the railways were doing to reduce dislocation of traffic due to snow and ice. The problem had been seriously considered by the former main-line companies and various aspects of the subjects had been discussed at meetings of Sections of the Institution.

As far as points were concerned, the scientific alternative to manual clearance was to use heaters. To install them at all vulnerable points on British railways would entail very large capital expenditure which, under present restrictions, should be devoted to more urgent works and to coping with contingencies which more frequently happened. Taking into account the density of traffic and the amount of snow which was experienced at the turn of the year, the railways had come through their difficulties well.

During the last three years all the Members of the Railway Executive and their Chief Officers had bent their energies on the task of unifying the railway system and of making a determined start with all the changes that that entailed. In the engineering departments great steps forward had been taken in settling technical practice and in preparing the way for future economies. It was essential that no time should be lost.

Members of the Institution were well aware of the great strides which had been, and still were being, made in developing highways on which the competition of rubber tyres encountering the friction of the new road surfaces would continue to challenge the advantages claimed for steel tyres revolving over steel rails. They provided a magnificent permanent way for the use of the railway operator, and it was for those who operated the railways and manned the motive power in every grade to help to make full use of the capital equipment. Only so could adequate public services and a high level of railway employment be maintained.

Permanent Way Achievements

Lt.-Colonel H. B. Everard, replying to the toast, said that the presence of Lord Hurcomb was very much appreciated, particularly as this was the third year in succession that he had attended.

An impartial onlooker, surveying the achievements of the permanent way staff since the second war, would agree that, in spite of all difficulties, they had not done a bad job of work. They had done and were doing large electrification schemes, with more to follow. They had done a first-rate job in repairing flood and storm damage on the east coast main line and elsewhere; they were carrying out year by year a very heavy permanent way re-laying

programme; and re-laying methods, developed during recent years, were second to none in the world. All this had been done despite great difficulties—the shortage of man-power, the uncertain delivery of materials, the need for economy.

Permanent Way Maintenance

Moreover, they were not afraid of experimenting on a large scale. One of the experiments on which they were now embarking was revolutionary. From the inception of railways, the normal method of permanent way maintenance had been to divide the track up into "lengths," each in charge of a ganger, who under him had a sub-ganger and a number of lengthmen. Now, on four lines of different classes an entirely new method was to be tried. The details of the schemes varied a good deal, but, in general, a convenient section of line had been taken, and all the major day-to-day maintenance work on the section had been allocated to a large maintenance gang completely equipped with mechanical plant for the job. Only the most minor items of maintenance were then left to be done by the length gangs, the strength of which could be considerably reduced.

It was not only in methods of maintenance that experiments were proceeding. Many already had been such large items of experimental equipment as the Matisa tamper and the Matisa ballast cleaner. Among larger equipment were the new diesel and diesel-electric cranes—though these had now passed the experimental stage—and the alternative types of track-laying machines. Amongst medium-size machines were tractors and scarifiers. Smaller mechanical tools such as rail drills, rail saws, nut runners and so on were now widely used; even the old types of track jack had to face formidable competition in the form of specially designed hydraulic jacks.

Another change had taken place in the permanent way man himself. From being purely a man of brawn he had now developed into a man of brain as well. From being familiar only with the beater and the slewing bar, he had progressed to the niceties of voidmeters and sighting boards, having more than a passing acquaintance with the internal-combustion engine.

Mr. J. C. Peace in proposing the toast to the Past-President referred to Mr. Train's successful career and recalled that as far back as 1923 he had written a paper on "Some Experiences of the Hallade Track Recorder on the L.N.E.R.—Great Northern Section," which was the beginning of a practice which was now almost universal on British Railways.

Mr. J. C. L. Train, in reply, said that he had been President on two occasions and he was voluntarily and very willingly giving up his office to the new President whom he had known since the first world war.

The Institution encouraged the team spirit in railway work which was so essential to success and must be if British Railways were to be a paying concern.

Mr. V. A. M. Robertson proposed the toast of the guests, and Lord Latham responded.

U.S. RAILWAY REVENUE.—American railways took in 20.9 per cent. more money in operating revenues in December, 1950, than in December, 1949, according to the Association of American Railroads. The 82 reporting lines took in slightly over \$702,000,000 in operating revenues as compared with nearly \$581,000,000 for the previous year.

Avalanches Disrupt Swiss Railways

Widespread destruction and delay to services on Alpine main and mountain lines

An unprecedented series of avalanches in many of the Alpine regions of Switzerland dislocated services on the Gotthard line and on the Rhaetian Railways during the weekend of January 20-21. The Gotthard line was repeatedly interrupted at various points, and it has been stated that never before in more than seventy years of its existence have such heavy avalanches blocked both tracks. Seven heavy avalanches fell on or near the line, and the section between Wassen, five miles north of Göschenen at the northern end of the Gotthard Tunnel, and Gurtellen, another five miles further north, was the worst sufferer.

Some 550 workers were busy since early on the Saturday morning freeing the line from some 350,000 cu. ft. of snow, rubble and trunks from trees of forests which had been in the path of the avalanches. Four fast trains from the north were stopped at Erstfeld, 18 miles north of Göschenen and at Flüelen 6½ miles further north, and some 600 passengers were forced to spend the night in them. Snow ploughs were busy clearing the masses of snow from the northern section of the line but had to proceed with caution as the snow was mixed with timber. One electrically-worked snow plough was useless because of the destruction of the overhead wires by the avalanches.

After a break of some 35 hours, the last of the blocked sections, north of Gurtellen, was partly cleared from snow and the traffic was resumed with steam working on one track only by 8 p.m. on Sunday. When it became apparent that it would become possible to resume traffic by night-time the fast trains from Basle, Zurich and Lucerne which had been held back during part of the Saturday and the whole of Sunday were allowed to proceed to intermediate stations south of the Lake of Lucerne to be in readiness for the re-opening.

The first train allowed to pass was the No. 54 Gotthard express with through coaches from Ostend, Calais, Copenhagen and Paris, for Milan, Rome, and Venice, normally leaving Basle at 6.43 a.m. and Lucerne at 8.11 a.m. Another fast train, northbound, left Göschenen tentatively at 4.30 p.m. but had to be stopped at Wassen because another avalanche had blocked the freed track to the north of the Naxberg Tunnel, north of Wassen station. As it proved impossible to run this train back to Göschenen it was held at Wassen. In many instances early Saturday trains from Basle for the south, and from Bellinzona for the north, returned to their departure stations to allow passengers to choose another route.

A phenomenon was that many of the avalanches did not follow their usual paths where they would have been diverted from the railway by avalanche protection works.

Lötschberg Line Unaffected

The Lötschberg Railway did not suffer although great avalanches came down in the Lötschen Valley near Goppenstein at the south end of the Lötschberg Tunnel. In addition to the numerous avalanche protection works on the line itself it is known that various other protective devices built by the Lötschberg Railway extend to high altitudes on the slopes between Goppenstein and Brigue along which the line runs.

The Schöllenenbahn, a 2½-mile electric metre-gauge line between Göschenen (3,628

ft.) and Andermatt (4,710 ft.), was closed because of the danger from avalanches, which hit Andermatt and the Furka-Oberalp Railway connecting Brigue with Disentis in the Grisons, via Gletsch and Andermatt. Because of the permanent avalanche threat there is no winter traffic on the Furka-Oberalp between Oberwald, 25½ miles from Brigue, and Andermatt, 42 miles from Brigue; Andermatt can be reached by railway during winter time only from Göschenen or from the Grisons.

The avalanches which fell on other sections of the Furka-Oberalp during the week-end necessitated the closing of the section between Miederswald (12 miles from Brigue) and Oberwald to all traffic from Saturday for an indefinite time. This was also necessary for the Andermatt-Realp section (3½ miles) west of Andermatt, where two trains a day each way only are run in winter, and the Andermatt-Oberalp-Sedrun section, some 12½ miles, leading east into the Canton of the Grisons. Subsequently also the Schöllenenbahn line was blocked by avalanches, and military assistance was asked to clear the line to establish connection with Andermatt where the avalanches had caused great loss of life.

In the Grisons almost the whole of the Rhaetian Railways system was affected. Of the some 250 route-miles only 97½ were in working order on the Saturday. They were the lines Chur-Landquart-Küblis, Chur-Reichenau-Thusis-Filisur, Reichenau-Ilanz, Poschiavo-Tirano, and the Bellinzona-Mesocco line in the Canton of Ticino, which has no physical connection with the Grisons system. The most extensive destruction occurred on the Bever-Zerne—Schuls-Tarasp line, which experienced the first avalanches.

The clearing of the lines proved particularly dangerous because of the continuous threat from further avalanches, which the mild weather was helping to form. On the Rhaetian Railways the station building at Davos-Monstein, south of the main resort, Davos-Platz, was destroyed by an avalanche. The stationmaster and another member of the staff were killed, but the stationmaster's wife and children from the masses of snow were rescued. So far as is known, the avalanches killed 56 persons; a further 20 are missing, believed killed. Another 20 were severely injured.

Staff & Labour Matters

Railway Shopmen's Wage Claim

The claim for a substantial pay increase was discussed by the R.S.N.C. on January 26. No statement was issued, but it is understood that the reply took the form of an offer which the executives of the N.U.R. and of the C.S.E.U. will consider. Railway shopmen received no rise in pay when increases were granted to lower paid conciliation and salaried staff last September. The basis of the present claim is the rise in cost of living and the increases in pay recently granted in the general engineering industry. No announcement has yet been made by the court of inquiry which concluded its hearing regarding rates of pay and conditions of service of railway salaried and conciliation staff on January 11. It is usual for any increases granted to salaried

and conciliation staff to bear relation to railway shops staff.

Shipbuilding and Engineering Wages

At a mass meeting on January 27 workers at the Elswick Works of Vickers Armstrong decided to ask for a 17½ per cent. increase in piecework rates. They passed a resolution that failure to satisfy this demand would lead to a ban on overtime and piecework as from February 19. A similar resolution has been recommended by the Tyne & Blyth District Committee of the A.E.U. At Liverpool, members of the Merseyside C.S.E.U. agreed to impose a ban on overtime from January 29 because of dissatisfaction over the recent national wage award.

Road Haulage Drivers' Strike

Long-distance lorry crews struck on January 29 at a Stratford depot of the British Road Haulage Executive, claiming that a three-months' agreed trial of new long-distance rail-and-road traffic arrangements—(the cause of the recent St. Pancras strike)—had resulted in redundancy.

Questions in Parliament

Conveyance of Mails by Rail

Mr. William Shepherd (Cheadle—C.) on January 24 asked the Postmaster General how many times during the last year he had made representations to British Railways about unsatisfactory service.

Mr. Ness Edwards: The Post Office and British Railways are in the closest regular contact at all levels to ensure the most satisfactory arrangements: representations are made as circumstances require, but a numerical record is not maintained.

Continental Passengers and Customs Examinations

Mr. W. F. Deedes (Ashford—C.) on January 23 asked the Chancellor of the Exchequer whether in order to improve customs arrangements at ports during Festival of Britain year he would arrange, as an experiment, for all baggage except registered baggage to be checked in the trains to London.

Mr. Gaitskell: This idea has quite recently been fully examined by the customs and railway authorities and others concerned. There is general agreement that in the particular circumstances it would serve neither the convenience of passengers nor the need for effective and economical control.

Mr. Charles Ian Orr-Ewing (North Hendon—C.): Can the Chancellor of the Exchequer explain why this could not satisfy the needs of travellers?

Mr. Gaitskell: It would not enable the train to get away any faster. It is not necessarily for the convenience of passengers that baggage should be investigated in the middle of a train journey.

Mr. Deedes: Is the Chancellor not aware that this is done on the Continent and that most passengers find it most convenient?

Mr. Gaitskell: It is done when passengers do not have to get out of the train; but when people arrive in this country they have to get out of a boat and into a train.

British Pensioners of Argentine Railways

Mr. Basil Nield (City of Chester—C.) on January 23 asked the Secretary of State for Foreign Affairs if he would make a statement as to the position of British pensioners of the Argentine railways in the

light of Anglo-Argentine trade agreements; and what arrangements had been made to enable such pensioners to return from the Argentine to this country and to be paid their pensions here.

Mr. Kenneth Younger, Minister of State, in a written answer stated: The Anglo-Argentine Trade & Payments Agreement of 1949 provided that invisible payments, such as pensions, should be freely permitted by the Argentine Government in so far as they have sterling exchange available. In spite of the Foreign Secretary's representations and those of H.M. Ambassador at Buenos Aires, the Argentine Government has not been renewing the expired permits of British pensioners, which would enable them to continue to draw their Argentine pension in this country, nor have such permits been granted to British pensioners who have not yet left Argentina. The Foreign Secretary will continue to do all in his power to bring about a more satisfactory state of affairs.

The Transportation Club

First club dinner

On Tuesday the first of a series of club dinners was held at the Transportation Club, Wilton Crescent, London, S.W.1. Because of the indisposition of the Chairman, Mr. Gilbert S. Szlumper, Mr. T. W. Royle presided. Nearly forty members, representative of railways, road transport, shipping and air interests were present.

Mr. Royle said that it was intended that the proceedings should be quite informal, but he would recall for the benefit of recently-joined members that the club had been established early in the war by the four main-line railways so that an opportunity might be provided for their officers to meet transportation officers from the American, Canadian and other overseas forces. At the end of the war the club had been taken over on its present basis.

Towards the end of last year it had been feared that it might be necessary to close the club. A representative *ad hoc* committee of five members had been formed with wide terms of reference to consider the future of the club subsequent to June 30 this year. One of the proposals which that committee had made in an endeavour to create greater interest in the club and provide some attraction for members to use the club mere in the evening was that a series of club dinners should be held. At these dinners it was intended to entertain some interesting personality. The present dinner obviously had proved a popular function and he felt sure that the support accorded it gave good grounds for optimism as to the future of the club.

SCOTTISH REGION: CLOSING OF STATIONS.—Scottish Region of British Railways announces that, as from February 5, Southwick Station on the Dumfries-Dalbeattie line will be closed for passenger train parcels and miscellaneous traffic and freight train traffic, though it will remain open as a passenger halt for a limited number of trains. Traffic now dealt with at Southwick will be transferred to Dalbeattie. Bowling (L.M.S.) Station in Dumbartonshire will be closed on the same date. Rail facilities for passengers will be available at Bowling (L.N.E.R.) Station and frequent bus services also operate in the area.

Contracts & Tenders

The Indian Government has recently placed a contract with Robert Stephenson & Hawthorns Limited for 30 2-6-4 "WM" class side tank locomotives.

The Rhodesia Railways have recently placed with Beyer, Peacock & Co. Ltd., orders for 52 Beyer-Garratt locomotives of three different designs, namely 30 of the 2-8-2+2-8-2 type, 12 of the 2-6-2+2-6-2 type, and 10 of the 4-8-4+4-8-4 type. The 4-8-4+4-8-4 type are known as the "15th" class, of which Beyer, Peacock & Co. Ltd., has already delivered 64. The other two classes mentioned are repeat orders for modernised versions of the types which have been operating for many years.

Notes and News

Spanish Express in Collision.—Seventeen persons were killed and 30 injured when a Valencia-Barcelona mail train collided with a lorry at a level-crossing at Tortosa, Catalonia.

Passport Office New Address.—The Passport Office has moved to Clive House, Petty France, London, S.W.1, near St. James's Park Station (telephone: Abbey 8010).

Vacancies in an Insurance Organisation.—An insurance organisation, with extensive connection in the transport industry, has vacancies on its outdoor staff for a number of young men. See Official Notices on page 139.

Acrow (Engineers) Limited.—An interim dividend of 20 per cent. on the ordinary capital increased by a 50 per cent. share bonus is to be paid by Acrow (Engineers) Limited. Last year the interim was 15 per cent. on the old capital.

Vacancy with Diesel Locomotive Sales Engineering Organisation.—British interests in association with a reputable American diesel-electric locomotive firm invite applications for the appointment as head of British domestic and export sales engineering organisation shortly to be established with headquarters in London. See Official Notices on page 139.

German Steel Industry.—An agreement between the Allied High Commission and the German Federal Government on the organisation of the west German iron and steel industry has come nearer, and talks have been initiated at Düsseldorf in search of a final plan. It has been agreed to set up 17 steel units. The German view is that these steel units should own at least 25 per cent. of the coal enterprises as compared with 60 per cent. before the war.

Swiss Locomotive Industry: Investment Programme.—The board of the Schweizerische Lokomotiv- und -Maschinenfabrik Winterthur (Swiss Locomotive & Machinery Works) announce that it has drawn up a large investment programme to safeguard the firm's competitive position in the future. The programme contemplates an expenditure of over fr. 15,000,000 over the next five years. The money will be used principally for the construction of modern factory installations, the continued purchase of high-capacity machine tools, the further rationalisation of production processes and the building of workers' houses. Not included in this sum

are the considerable amounts of money which this firm is spending on current research and the possible inclusion of new lines in its production programme.

Tecalemit Limited.—The ordinary dividend of Tecalemit Limited for the year ended July 31, 1950, on the capital doubled by a share bonus, will be brought up to 12 per cent. with a final dividend of 9 per cent. For the previous year the ordinary dividends consisted of an interim dividend of 6 per cent. on the old capital and a final of 7 per cent. on the new. Group profits were £124,699, against £85,580, after payment of tax of £68,405, compared with £36,636.

Pye Preference Issue.—The shareholders of Pye Limited on January 19 approved a resolution authorising the capitalisation of £233,066 of reserves and the issue of this amount to deferred shareholders on the register on January 12 as a bonus in the ratio of one share for every 5s. unit of stock held. They also approved the creation of 750,000 preference £1 shares. These will be issued in the near future and the terms will be announced in due course.

Conference on Diesel Locomotive Productivity Report.—The Internal Combustion Group of the Locomotive Manufacturers' Association of Great Britain announces that, owing to the effect of the influenza epidemic at members' works, it has been necessary to postpone the conference to discuss the Diesel Locomotive Industry Productivity Team Report, which was due to be held on February 13, until March 20.

British Tourist Industry.—Addressing the council of the British Travel & Holidays Association on January 24, the Chairman, Sir Alexander Maxwell, said that the board had prepared for the coming year a wide-

spread and aggressive publicity campaign, particularly in U.S.A. and Canada, and had allowed for greater expenditure in the Dominions and Western Europe. With the international outlook worsening, they had stopped part of their publicity lest it might have the opposite effect psychologically to that intended. It was now unlikely that Britain could attract the 700,000 visitors hoped for in 1951, but perhaps the figure of 600,000 for last year might be equalled.

Coming-of-Age of the Southern Region Lecture & Debating Society.—Last year the Southern Region Lecture & Debating Society celebrated its twenty-first anniversary. To mark the occasion it has produced an interesting souvenir programme which includes a short history of the society, a list of past and present officers, important meetings and visits which have been made, and details of current society events to the end of the present session next month. The membership is now 1,031, a record, and is open to all grades and personnel of all departments.

New Zealand's Public Works Programme.—The New Zealand Acting Prime Minister, commenting on a report that the North Island railway electrification and other planned major public works would be postponed, said that the Government had not seriously considered any postponement and had certainly taken no decision. The Government would have to decide on priorities if the rearmament programmes of other countries created serious shortages of basic materials required for New Zealand undertakings.

Steel Company of Wales.—The trading profit of the Steel Company of Wales Limited and its subsidiaries for the year to September 30, 1950, amounted to £2,412,323, against £2,113,865 in the previous year. The amount carried to the con-

solidated profit and loss appropriation account is £725,550, against £940,576. It is computed that, because of initial allowances, there is no liability to profits tax and income tax on profits to date, and no specific provision for these taxes has been made. It is proposed to pay an ordinary dividend of 4 per cent., the same as for the two previous years, and a balance of £1,451,512 will remain to be carried forward (£994,055).

Railway Benevolent Institution.—At a meeting on January 24 the board of the Railway Benevolent Institution granted annuities to ten widows and 15 members involving an additional liability of £456 3s. a year; 41 gratuities were also granted amounting to £384 2s. to meet cases of immediate necessity. Grants made from the casualty fund in December, 1950, amounted to £744 7s.

Butler Machine Tool Company.—For the year to September 30, 1950, trading profits of the Butler Machine Tool Co. Ltd. amounted to £63,283 (£53,540 for 1948-49) and net profits to £25,753 (£23,709). Dividends are unchanged and absorb £17,875, leaving £36,539 to go forward (£28,661). It is stated by the Chairman that orders are being received at a rate greater than current production.

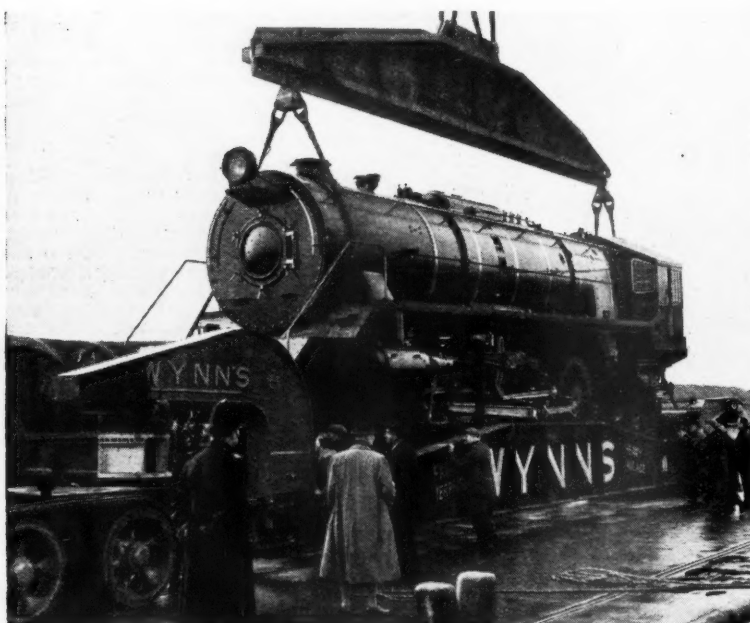
Irish Workers' Holidays Plan.—To enable workers to have a seven or 14-day holiday as cheaply as possible, the Holiday Organising Company, Dublin, has introduced an all-in scheme in which participants, in return for a weekly subscription, receive full or partial board, plus the cost of rail, steamship, or air travel. The scheme has been arranged for the company by Mr. W. V. Lyons, who was excursion organiser for the former Great Southern Railways.

Scottish Society of Students of the Locomotive.—At a meeting of the Scottish Society of Students of the Locomotive, held at 302, Buchanan Street, Glasgow, on Friday, January 5, Mr. William Robertson read a short paper on "The Dimensions of Coupled Wheels and Cylinders on an Express Passenger Locomotive." Mr. Robertson advanced the view that engines with large dia. coupled wheels were, from the maintenance point of view, more suited to high speeds than those with smaller wheels, and also suggested that a long piston stroke was not necessarily an advantage.

Rise in Private Hauliers' Rates.—The national rates committee of the Road Haulage Association has recommended that road haulage rates be increased by 7½ per cent. forthwith, to meet increased costs of operation incurred since May 1, 1950. This increase covers the advance foreshadowed in a statement by the Association on December 11, that its national rates committee found that the cumulative effect of increases in costs "would justify an addition of 5 per cent. to road haulage charges." As recorded in our last week's issue, the Road Haulage Executive has announced an increase in its general haulage and parcel rates of 10 per cent. from January 29.

Cartridge Fuse-Links for Railway Signalling Circuits.—The British Standard for cartridge fuse-links for railway signalling circuits first issued in 1936 has now been revised (B.S. 714: 1950) to bring the range into line with modern developments in design. It has been drawn up to apply to cartridge fuse-links only and covers those suitable for use in circuits in which the declared voltage does not exceed 250 volts between conductors or between conductor

North British Locomotive for Festival of Britain



North British 2-8-2 "WG" class locomotive at the Surrey Commercial Docks being loaded ready for transport by road to the Festival of Britain site at South Bank (see our January 19 issue)

OFFICIAL NOTICES

AN INSURANCE ORGANISATION with extensive connections in the Transport industry has vacancies on its outdoor staff for a number of young men. Excellent opportunities to those possessing good personality and anxious to succeed. Box 966, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

THE "PAGET" LOCOMOTIVE. Hitherto unpublished details of Sir Cecil Paget's heroic experiments. Eight single-acting cylinders with rotary valves. An application of the principles of the Wharton central-valve engine to the steam locomotive. By James Clayton, M.B.E., M.I.Mech.E. Reprinted from *The Railway Gazette*, November 2, 1945. Price 2s. Post free 2s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

DIESEL ELECTRIC LOCOMOTIVES. British interests in association with reputable American Diesel electric locomotive firm invite application for appointment as head of British domestic and export sales engineering organisation shortly to be established with headquarters in London. Applicants should preferably be qualified engineers with railway motive power or operating experience, either on British and/or overseas railways. Previous commercial experience is desirable. A considerable amount of travel overseas will be involved, commencing with a study tour in the United States. Substantial remuneration commensurate with responsibilities and results. Applications, which will be treated in strict confidence, should be mailed to the undermentioned box number not later than February 11. Reply box 968, *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

WE buy used or unserviceable Steel Files at good prices, in lots of 2 cwt. or more—THOS. W. WARD LIMITED, R.S. Dept., Albion Works, Sheffield.

INTERNATIONAL RAILWAY ASSOCIATIONS. Notes on the work of the various associations concerned with International traffic, principally on the European Continent. 2s. By post 2s. 2d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

RAILWAY MAINTENANCE PROBLEMS. By H. A. Hull (late District Engineer, L.M.S.R.). Valuable information. With much sound advice upon the upkeep of permanent way. Cloth. 8½ in. by 5½ in. 82 pp. Diagrams. 5s. By post 5s. 3d. *The Railway Gazette*, 33, Tothill Street, London, S.W.1.

and earth. The standard lays down standard current rainings and standard dimensions and deals with manufacturing requirements and performance and the type tests required. Copies may be obtained from the British Standards Institution, Sales Department, 24, Victoria Street, London, S.W.1, price 2s.

Central Wagon Company Result.—A final dividend of 15 per cent., making 20 per cent. for the year ended September 30, 1950 (the same as for the previous year) is declared by the Central Wagon Co. Ltd. The consolidated net profit, after tax, attributable to the parent company is £104,459 (against £133,363); net profit dealt with by parent company is £47,705 (£66,577).

L.M.R. Film Service.—Sound films giving a preview of resorts for next season, together with visits behind the scenes in railway works or British industries, are available free to clubs, schools and societies from the film library of the London Midland Region of British Railways. Many of the films are in colour. They are loaned with an operator and projector if required without charge and have proved so popular that 2,000 shows have already been given to nearly 200,000 people.

Diesel Locomotive Instruction in Canada.—The first railway diesel school in Canada has been established by the Canadian National Railways in Charlottetown in connection with the operation of diesel-electric locomotives on that division. The railway on Prince Edward Island has been completely dieselised, making it the only province in Canada converted to diesel power, and the school will be used for the elementary training of apprentices and others in the maintenance and operation on the types of equipment in use on the island.

European Railways Information Centre.—The recent creation under the aegis of the International Union of Railways of a European railways information centre (*Centre d'Information des Chemins de fer Européens*, or C.I.C.E. for short) shows how far the majority of European railways are prepared to unite in defence of common interests and in the face of the common threat of competition. Participating administrations so far comprise those of the State-owned railways in 15 European countries (including British Railways) and in Israel, and of the Wagons-Lits Company. The standing committee is composed of representatives of eight railways. Day-to-day management is the responsibility of the Italian State Railways; the headquarters of the new organisation are in Rome, whence also has been published the first issue of the C.I.C.E. quarterly bulletin. The principal function of the C.I.C.E. is world-wide publicity on behalf of the rail-

ways as a means of transport. Concerted action is to be taken by all possible means, such as the press, wireless, and films, to increase public knowledge of the part played by railways in modern life.

U.S. Railway Earnings.—The New York Central Railroad preliminary statement for the year ended December 31 shows a net income of \$18,315,000, equal to \$2.84 a share. This compares with \$9,728,000 and \$1.51 respectively previously. The Southern Railway's preliminary statement for the same period shows net income at \$28,400,000, equal to \$14.94 a share, compared with \$11,914,000 and \$6.87 respectively previously.

Southern Region Lecture & Debating Society.—On January 24, a paper entitled "Developments in Locomotive Engineering" was delivered to British Railways, Southern Region, Lecture & Debating Society, at the Chapter House, London Bridge, by Mr. R. G. Jarvis, Chief Technical Assistant for Locomotives, Southern Region. A variety of modern steam locomotives was described and reference was

made to recent developments in diesel-mechanical, diesel-electric, gas-turbine, and electric traction; the paper was illustrated by a set of lantern slides. Mr. S. B. Warder, Chief Officer (Electrical Engineering), Railway Executive, was in the chair and a vote of thanks to the speaker and chairman was proposed by Mr. T. E. Chrimes, Superintendent of Motive Power, Southern Region, and seconded by Mr. H. H. Swift, Mechanical & Electrical Engineer, Southern Region.

Associated Commercial Vehicles Limited.—Group profits for the year to September 30, 1950, of Associated Commercial Vehicles Limited were £830,457 (£752,356 for 1948-49) after all charges, including taxation of £836,456. The proportion attributable to minority shareholders was £15,885 (£12,716). The group profits, after crediting profits on sale of assets and non-recurring items, are £165,827 (£74,673), loss, but before charging £86,000 (£248,000) as a further provision for income-tax in respect of a subsidiary which began to trade in October, 1948. The proposed final dividend, free of tax,

Presentation to Mr. T. Wooding



Mr. H. A. Short, Chief Regional Officer, North Eastern Region, accompanied by Mr. T. R. Hawkes, Accountant, Eastern and North Eastern Regions, after presenting a series of gardening books to Mr. T. Wooding, who recently retired as Revenue Accountant, North Eastern Region, on behalf of officers of the North Eastern Region

is 7½ per cent. (as for the previous year), and this, with the interim of 5 per cent., tax free (as for last year), will absorb £260,937. The total dividend is equal to about 3½ per cent. (4½ per cent) free of tax, on the capital invested in the business.

Southern Region Lecture & Debating Society.—Mr. David Blee, Member, Railway Executive, will read a paper entitled "Some Factors in Railway Commercial Practice" to British Railways, Southern Region, Lecture & Debating Society on February 14. The meeting will be held at the Chapter House, St. Thomas' Street, London Bridge, S.E.1, at 5.45 p.m.

Combined Road-Rail Tickets in France.—The combined road-rail tickets at reduced fares introduced by the French National Railways last summer are being replaced by a new series of similar tickets for many more tours covering nearly the whole of France, and will be on issue for travel according to the periods during which the motor-coach services to be used are in operation. Tickets will be issued for tours from and back to any of the Channel ports, or Paris, or the Franco-Belgian frontier.

Scottish Motor Traction Company.—All bus services operated by the Scottish Motor Traction Co. Ltd. were taken over by Scottish Omnibuses Limited on January 19. The formal application for the change to be made was approved at a sitting in Edinburgh of the Licensing Authority for Public Service Vehicles. On behalf of Scottish Omnibuses Limited it was stated that they would continue to operate the existing services in exactly the same way as the former company, and would be controlled by the same personnel.

Forthcoming Meetings

- February 2 (Fri.).—Scottish Society of Students of the Locomotive, at 302, Buchanan Street, Glasgow, C.2, at 7.30 p.m. "Reminiscences of My Railway Life," by Mr. G. W. Phillips.
- February 5 (Mon.).—Institute of Transport, Metropolitan Section, at 80, Portland Place, London, W.1, at 5.30 for 6 p.m. "Railway Freight Rolling Stock," by Mr. S. E. Parkhouse, Chief Officer (Operating), Railway Executive.
- February 5 (Mon.).—Society of Engineers, in the apartments of the Geological Society, Burlington House, London, W., at 5.30 p.m. Presidential address by Mr. S. Sison Ham, followed by the annual dinner.
- February 5 (Mon.).—Historical Model Railway Society, at the headquarters of the Stephenson Locomotive Society, 32, Russell Road, London, W.14, at 7 p.m. Lantern slides from the collection of the Society.
- February 8 (Thur.).—Engineers' Guild, Metropolitan Branch, at the Caxton Hall, Westminster, at 6 p.m. "The Engineer in Industry," by Mr. A. L. L. Baker.
- February 8 (Thur.).—Irish Railway Record Society. "Railway Signalling," by Mr. Guthrie.
- February 10 (Sat.).—British Railways, Southern Region, Lecture & Debating Society. Visit to the new B.E.A. electric power station at Croydon.
- February 12 (Mon.).—Institute of Transport, at the Jarvis Hall (R.I.B.A.), 66, Portland Place, London, W.1. Brancker Memorial Lecture. "Some Economic Aspects of Airline Operation," by Mr. Peter G. Masefield.

Railway Stock Market

Details of the revised rearmament plan have been accepted philosophically in stock markets. There certainly has been a sharp reaction in British Funds, but, apart from the prospect that the new savings drive will divert attention from British Funds quoted on the Stock Exchange to savings certificates, a major influence has been a disposition to await the big nationalisation steel issue.

Buyers have been holding on and British Funds have reacted in price. However, at the time of writing the latter are tending to attract buyers, and so far there has been no evidence of any official support to put up gilt-edged prices in advance of the big steel issue. Under the Steel Act the nationalisation steel stock issue terms have to be in line with those ruling in the gilt-edged market at the time of issue.

Dealings in the new stock are expected to start on February 16 and there are fears that the new stock will encounter a good deal of selling in the early stages and probably go to a discount. This fear partly explains why steel shares are still quoted well below their official take-over valuations. Industrial shares have turned easier because it is now generally realised the cost of rearmament makes higher taxation inevitable. Supplies of metals and other essential materials will become increasingly scarce for industry and prices are still showing an inflationary rise.

Following Rails have been firm generally, being a little more active, buyers coming in for securities of companies operating in countries which are not directly affected by rearmament. Nitrate Rails were prominent with an advance to 81s. 3d. in response to the official news that the lines are being taken over on terms that will provide a surplus for ordinary shareholders. The market assumes that compensation for shareholders will probably be well above the current market price. Some considerable time may elapse, however, before the deal is completed and a pay-out can be made.

Antofagasta stocks were prominent with the ordinary at 7½ and the preference good at 51. Taltal shares (17s. 9d.) have also moved in favour of holders. After

their recent rise on U.S. buying, with talk of revaluation of the Mexican peso, Mexican railway stocks came in for a little profit-taking. Mexican Central "A" bonds were 59 and National of Mexico 4½ per cent. non-assented 40. In other directions Bolivar "C" debentures eased to 57, and La Guaira ordinary stock has strengthened to 82½. There was rather more business reported in United of Havana stocks; the 1906 debentures firmed up to 18.

Leopoldina stocks were generally well maintained with the ordinary at 11, the preference 28, the 4 per cent. debentures 99½, and the 6½ per cent. debentures 147½. Leopoldina Terminal 5 per cent. debentures were 93½ and the ordinary units 1s. 3d. Great Western of Brazil kept firm at 157s. and San Paulo 10s. units were 16s. 6d. Brazil Rail gold bonds were 43½. In other directions Manila "A" bonds were 59½ and the preference shares 6s. 3d. Canadian Pacifics have been helped by a further upturn in Wall Street markets and were 48½. The 4 per cent. preference changed hands around 74½ and the 4 per cent. debentures reached par.

There has been a little selling of road transport shares on fears that higher costs are affecting profits, although the market expects that in most cases dividends will be maintained. Potteries Motor Traction changed hands around 42s., West Riding was 57s. 6d., Lancashire Transport 61s. 3d., and Southdown 110s. B.E.T. deferred stock was £520.

Iron and steel shares were mostly firm with Vickers and Cammell Laird prominent on hopes of higher dividends and a so on estimates as to nationalisation compensation for their big shareholdings in the English Steel Corporation. Dorman Long strengthened a little to 31s. 9d., together with other nationalisation shares, have remained below their scheduled take-over levels.

Locomotive building and engineering shares held firm. Birmingham Wagon were 31s. 9d., Hurst Nelson 61s., and Beyer Peacock 26s. North British Locomotive advanced to 23s. 4½d. on news of a good contract, while Vulcan Foundry were 25s. 6d., and Wagon Repairs 5s. shares 17s. 3d.

Traffic Table of Overseas and Foreign Railways

	Railway	Miles open	Week ended	Traffics for week		No. of week	Aggregate traffics to date			
				Total this year	Inc. or dec. compared with 1948/49		Total	Increase or decrease		
							1949/50			
South & Central America	Antofagasta ...	811	21.1.51	£ 115,170	+	£ 43,980	3	£ 293,390	+	£ 82,190
	Costa Rica ...	281	Dec., 1950	c883,460	+	c525,677	26	c6,180,729	+	c1,024,867
	Dorada ...	70	Nov., 1950	36,972	+	13,063	48	428,205	+	107,418
	Inter. Ctl. Amer. ...	794	Nov., 1950	\$1,059,387	+	\$34,405	48	\$12,260,819	+	\$1,125,713
	La Guaira ...	22½	Sept., 1950	\$68,726	—	\$39,529	39	\$725,535	—	\$241,943
	Nitrate ...	382	15.8.50	10,816	—	8,656	32	286,336	—	6,203
	Paraguay Cent. ...	274	19.1.51	£ 232,565	+	£ 94,016	29	£ 5,856,223	+	£ 1,714,957
	Peru Corp. ...	1,050	Dec., 1950	\$7,347,000	+	\$560,800	26	\$46,130,000	+	\$12,334,042
	" (Bolivian Section)	66	Dec., 1950	Bs.13,328,000	+	Bs.2,616,000	26	Bs.69,914,000	+	Bs.7,044,836
	Salvador ...	100	Oct., 1950	c87,000	—	c19,000	18	c355,000	—	c42,000
Taltal ...	154	Dec., 1950	\$1,435,116	—	\$57,262	26	\$9,256,802	+	\$1,584,101	
Canada	Canadian National†	23,473	Oct., 1950	18,063,000	+	2,947,000	43	150,250,000	+	13,286,000
	Canadian Pacific...	17,037	Nov., 1950	11,700,000	+	978,000	48	114,918,000	+	3,873,000
Various	Barsi Light* ...	167	Nov., 1950	30,142	+	2,482	35	231,667	+	6,945
	Egyptian Delta ...	607	10.10.50	18,245	+	1,296	28	319,911	—	24,005
	Gold Coast ...	536	Nov., 1950	308,361	+	29,865	35	1,959,582	+	65,411
	Mid. of W. Australia	277	Nov., 1950	40,070	+	10,472	22	193,383	+	51,514
	Nigeria ...	1,900	Jan., 1950	502,360	+	38,978	44	5,017,814	+	246,573
	South Africa ...	13,347	6.1.51	1,531,505	+	296,985	39	68,094,555	+	8,737,157
	Victoria ...	4,744	Sept., 1950	1,729,344	+	103,977	13	—	—	—

* Receipts are calculated at 1s. 6d. to the rupee

† Calculated at \$3 to £1